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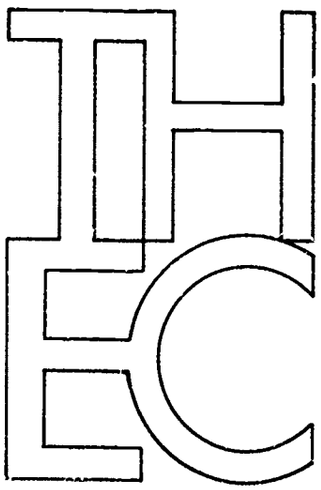
ABSTRACT

This long-range Master Plan for higher education in Tennessee includes a series of recommendations concerning the development of quality higher education in Tennessee during the next decade so that comprehensive, high quality educational opportunities are provided at the lowest cost. Eight major goals for the state were arrived at during the formation of the Master Plan: (1) Tennessee should provide educational opportunities for all citizens who have the ability and interest to attend college; (2) Tennessee should provide a system of public institutions offering the programs required by its citizens; (3) Tennessee should provide advanced graduate and professional programs for an expanding and more complex economy; (5) Tennessee should support higher education at a level to insure quality instructional programs; (6) institutions should place high priority on meeting accreditation standards for existing programs before initiating new programs; (7) more emphasis needs to be placed on efficiency as higher education becomes more costly; and (8) educational change will require institutional flexibility and adjustment to new needs in the future. (HS)

HIGHER EDUCATION FOR TENNESSEE'S FUTURE



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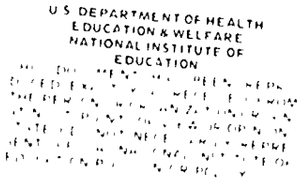

HIGHER EDUCATION FOR TENNESSEE'S FUTURE

A Master Plan for Higher Education Developed by the

TENNESSEE HIGHER EDUCATION COMMISSION

January, 1973

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INTRODUCTION

The development of this long-range Master Plan for higher education in Tennessee has involved the participation of all public institutions, representatives from private higher education, many specialists and consultants, and a number of citizens in addition to the members of the Commission. Several specialized studies have been made and published by the Commission, and the data and recommendations are included in this overall plan in the appropriate sections. A list of all the studies, which ranges from one on private higher education in Tennessee to a study on medical education, and a study on scholarships and other financial aid available to students, are included in the appendix.

A Master Plan, essentially, is a look into the future. It includes a series of recommendations concerning the development of quality higher education in Tennessee during the next decade, so that comprehensive, high quality educational opportunities are provided at the lowest possible cost. It should not be viewed as a rigid blueprint to remain unchanged for many years, but as a dynamic plan which can, and will, be altered to fit changing conditions.

There have been previous studies conducted on higher education, and each college and university in the State has its own plan of development. But in the development of the Master Plan, Tennessee is engaged in a continuing process of planning by establishing higher education goals for the State, by indicating alternate methods to reach these goals, and by identifying the costs and consequences attached to the various methods of developing higher education. The plan is more than the sum of individual institutional plans because it addresses itself to the basic questions facing the State as a whole, and because it may suggest different goals than those to which the institutions aspire.

A Master Plan will be useful to Tennessee. It can be effective in improving quality while reducing costs if it makes sound recommendations in the public interest, and if these recommendations are supported by the institutions, the legislators, and the government officials who must put them into effect. A Master Plan is not a substitute for the regular decision-making processes of universities and State government, but it can make these processes more effective. For example, if an institution proposes a new program when the Master Plan indicates that Tennessee already has enough such programs to serve the needs of the State, the institution has two alternatives. It can either drop these plans in favor of some other needed program, or it can justify its proposal with detailed data that may require an exception.

Not all of the recommendations in the Master Plan will suit all people. No plan which offers anything specific and important about higher education is likely to please everyone. Some of the institutions would like to have a larger role in graduate education than has been proposed, and there are community pressures in other situations to change the role of institutions or to start new programs which may not be needed. These differences of viewpoint should be debated on their merits rather than resorting to attacks on the master planning process, or rejecting the whole Master Plan.

Many of the most controversial issues discussed in the plan have the most potential for saving funds or improving education. For instance, the plan outlines a method to develop medical education programs which will lead to a better distribution and a better supply of physicians in the State much more quickly and at less expense than the alternative of developing a second publicly-supported medical school. The plan also proposes a method of providing expanded occupational education programs and other community college programs in the major metropolitan areas through expansion of the existing technical institutes rather than create separate and duplicate institutions. This approach will offer economies and will also expand the educational options of those who enter the more comprehensive institution.

Both of these proposals have their critics, as most important ideas usually do. Both may be resolved ultimately by the General Assembly and the Governor as major issues usually are resolved in a democracy. But such solutions will be based on the availability of complete information about the alternatives.

The process of planning, studying and outlining alternatives in anything as dynamic as higher education must be a continuous one. This planning document draws together in a single plan the various recommendations and issues with which the Commission has dealt during the past four years. It serves as the second biennial report of the Commission on the status of higher education in the State. Although this plan is convenient in understanding the major recommendations for development it should be understood that this is not the end of the planning process. The Master Plan will be updated periodically. New studies will lead to modification in the plan and in its recommendations. If viewed as a continually-developing guide to the future of higher education, it can be helpful to all Tennesseans in looking at the future of their educational system.

GOALS FOR HIGHER EDUCATION

SUMMARY

The goals for public higher education in the State include:

1. TENNESSEE SHOULD PROVIDE EDUCATIONAL OPPORTUNITIES FOR ALL CITIZENS WHO HAVE THE ABILITY AND INTEREST TO ATTEND COLLEGE. The State will have to enroll from 36 to 39 per cent of the 18-to-24-year old population by 1980 to reach the national average. Since black enrollment is three-fourths of the white enrollment per cent, special encouragement must be given blacks to attend college, including graduate and professional programs. Enrollment projections indicate growth will be mostly at public institutions, which are expected to add from 38,000 to 52,000 students by 1980, compared with 97,000 enrolled in 1970.

2. TENNESSEE SHOULD PROVIDE A SYSTEM OF PUBLIC INSTITUTIONS OFFERING THE PROGRAMS REQUIRED BY ITS CITIZENS. Some programs are provided by interstate arrangements or special contractual agreements with private State institutions. Tennessee, however, should provide basic programs in major fields, but avoid unnecessary duplication.

3. THE STATE SHOULD ASSIST IN MAINTAINING STRONG PRIVATE COLLEGES. Without the 39 private institutions in the State, which enroll 18,000 Tennesseans it would cost the State about $20 million annually to educate these students. There is a need for a partnership between the public and private institutions, rather than a competitive struggle.

4. TENNESSEE SHOULD PROVIDE ADVANCED GRADUATE AND PROFESSIONAL PROGRAMS FOR AN EXPANDING AND MORE COMPLEX ECONOMY. About 11 per cent of Tennessee's public university students are enrolled at the graduate level. The 1980 graduate total is expected to be nearly 100 per cent greater, and Memphis State University should be developed as a comprehensive institution to help accommodate this increase.

5. TENNESSEE SHOULD SUPPORT HIGHER EDUCATION AT A LEVEL TO INSURE QUALITY INSTRUCTIONAL PROGRAMS. Tennessee is not keeping pace in financial support with the leading Southeastern states. Although a formula for equal financing has been devised, State appropriations have been inadequate to permit its full application.

6. INSTITUTIONS SHOULD PLACE HIGH PRIORITY ON MEETING ACCREDITATION STANDARDS FOR EXISTING PROGRAMS BEFORE INITIATING NEW PROGRAMS. A number of programs at State institutions are not accredited. Although some programs are new which explains their unaccredited status, others have been in existence for some time.

7. EFFICIENT AND RESPONSIBLE OPERATION. Although Tennessee's institutions maintain programs on less financial support than comparable schools in neighboring states, more emphasis needs to be placed on efficiency as higher education becomes more costly.

8. EDUCATIONAL CHANGE WILL REQUIRE INSTITUTIONAL FLEXIBILITY, AND ADJUSTMENT TO NEW NEEDS. The next decade will be a period of change affecting all aspects of academic life, and institutions must justify their practices on grounds other than tradition. Changes already effected on campuses include more working adults in evening study; more courses being taken off campus to students; greater allowance of credit for independent study or work experience; and more determination by students concerning study programs.

Tennessee should provide higher education opportunities for all citizens who have the ability and interest to attend college. The State has made considerable progress during the past decade in expanding opportunities for college attendance. In 1960, the total Tennessee college enrollment was 17 per cent of the 18–24-year-old population in the State. By 1970, it was 28 per cent, and by 1975 it is estimated at 31-33 per cent. For Tennessee to achieve, by 1980, a level of enrollment which approximates the national average, 35-38 per cent of the college age population will have to be enrolled.

It is particularly important that more of Tennessee's black high school graduates enter college. In 1970, black college enrollment was only 21 per cent of the black college age population or about three-fourths the level of whites. Their representation was even less in the graduate and professional schools. Special encouragement must be given to blacks to attend college, including the advanced programs.

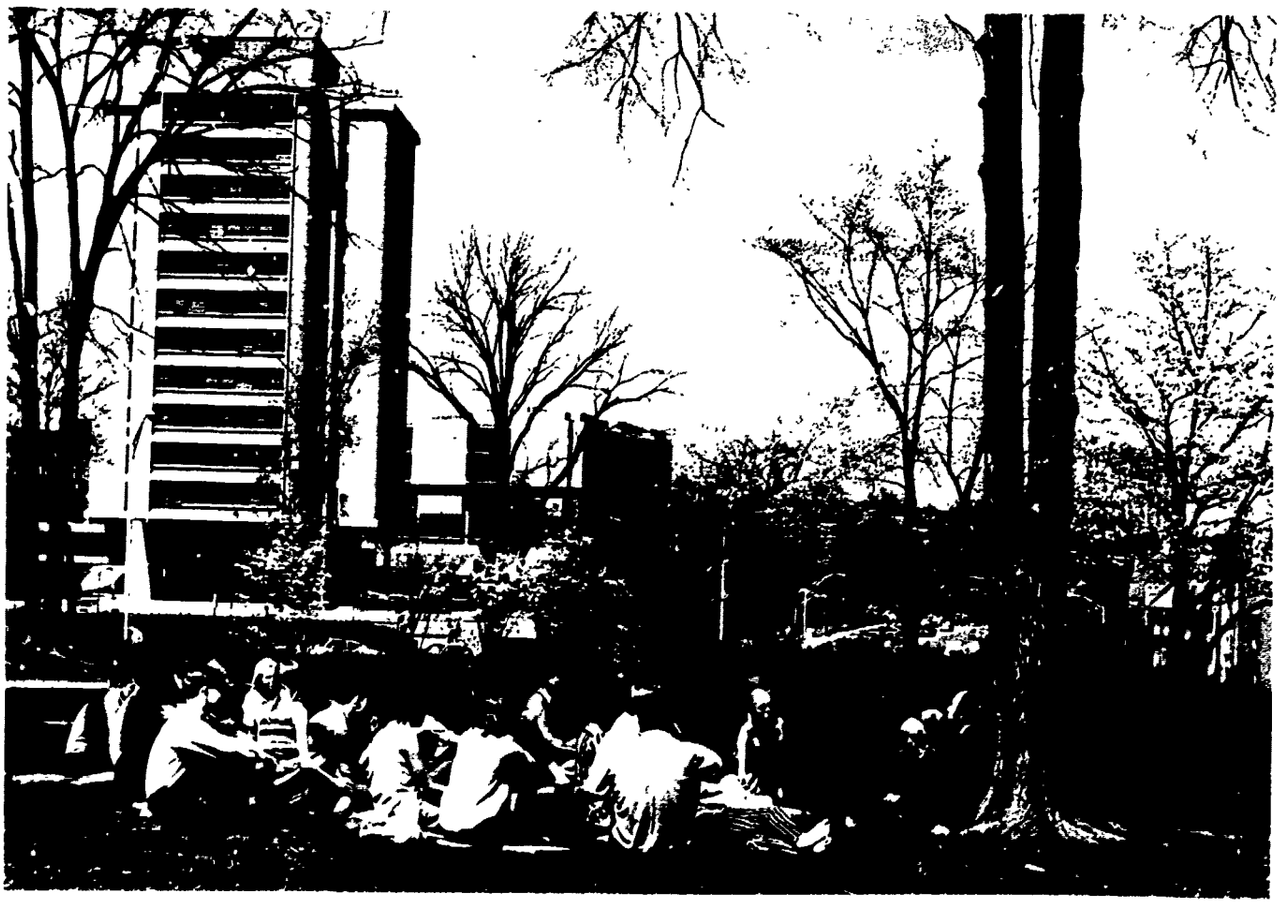
These projected levels of attendance assume that additional community college programs will be available during the next five or six years. Unless they are added to our system of higher education, the State will probably be unable to educate as many of its young people as other states will be educating.

These projections also assume that most of the expanded opportunities for higher education will have to be provided in public institutions, which probably will add 38,000–52,000 students by 1980 to the 97,000 enrolled in the fall of 1970.

Tennessee should provide a system of public institutions which furnish the educational programs, research, and services in higher education required by the economic and social development needs of its citizens. Some specialized services and educational programs are now, and should continue to be, provided by interstate arrangements or by special contractual agreements with private institutions in the State. *These arrangements have saved the State substantial sums in the past, and they should be continued in those specialized situations where they can meet educational needs.* The State, however, should accept the responsibility for providing basic programs in major fields within its public institutions.

Many of the program offerings, such as those in education, business, and nursing, will have to be duplicated in most of the public institutions to meet the heavy demand for graduates. But others of a much more highly-specialized nature, such as bioengineering or nuclear physics, should be concentrated in a single program offered by one institution. The objective

A history section at UT Knoxville holds class in Circle Park and enjoys the weather on a beautiful spring day.



The University Center at Tennessee Technological University is a favorite place for friends to meet and chat.

should be high quality programs, with no duplication unless the demand for graduates and the number of potential students is sufficient to support programs in several institutions. While the employability of graduates is very important in determining what educational programs should be offered, the value of a broad, general education must not be overlooked. As technology becomes more highly developed, as living conditions become more crowded, as improved methods of communication make more information available to our citizens, there will be even greater need for good judgment and tolerance. The State's higher education system is obligated to provide the kinds of knowledge and experience which will enable its citizens to live effectively and enjoyably in a highly-complex society. (A detailed discussion of program development appears later.)

The 39 private institutions in the State provide an additional resource for higher education which is very important to Tennessee. They offer diverse opportunities for higher education, ranging from junior colleges to a complex university; although a majority of the private colleges are primarily undergraduate liberal arts colleges. About 18,000 Tennesseans are receiving their education at in-state private institutions. If these private colleges did not exist, the additional cost to the taxpayers of educating these students would be nearly $20 million a year. For educational and financial reasons, Tennessee has a large stake in a vigorous and financially-sound private education sector. *The State, therefore, should assist in maintaining a strong group of private colleges in Tennessee. This means that Tennessee should avoid* actions which put the private institutions at a disadvantage in serving the educational needs of the State. In addition, the State, whenever possible, should utilize the resources of the private institutions for reasons of economy. What is sought is a partnership between public and private institutions to provide broad educational opportunities for the citizens, rather than a competitive struggle between the two.

Tennessee should provide advanced graduate and professional programs to meet the needs of an expanding and increasingly-complex economy, and to serve the increasing number of Tennesseans who seek education beyond the bachelor's degree. Graduate and advanced professional enrollment is growing more rapidly than undergraduate enrollment. Tennessee, with slightly more than 11 per cent of its public university students enrolled at the post-baccalaureate level, is a little below the comparable national average. By 1980, advanced degree enrollment in public universities, exclusive of the UT Medical Units, is estimated to increase by nearly 50 per cent: from approximately 15,500 in 1972 to 20,000—25,000. To provide for this anticipated enrollment, the State should develop Memphis State University as a comprehensive graduate institution; similar to UT Knoxville which has already attained this status. Employment opportunities for persons with advanced degrees in some fields will be limited because institutions already are producing more graduates than are required. In some other professional areas, such as the health professions, further expansion is needed. In all areas, the State must exercise more care in planning new programs—and in expanding existing programs—so that an excessive number of students will not be encouraged to undertake costly training for positions that are in short supply.

Tennessee should support all programs at a level which will enable institutions to compete effectively for faculty, and provide the equipment, supplies, and facilities necessary to conduct a modern program of instruction. Currently, Tennessee is not keeping pace with the leading Southeastern states in supporting higher education. Unless financial support can continue to be increased, it will not be possible to accommodate enrollment increases, to improve and strengthen graduate and professional programs, and to maintain a quality staff. There should be equal support for all institutions to operate equivalent instructional programs. Until this is achieved, some of those which operate more expensive programs will suffer. A formula-based approach to equal financing has been endorsed by all institutions, but there has never been sufficient total appropriations to permit full

funding of the formula. (A more detailed description of the financial requirements for achievement of educational goals is presented in another section.) The improvement of existing programs and new program development will have to proceed at a slower rate unless adequate support can be obtained.

A number of professional programs in the public universities have not been accredited by the appropriate professional accrediting associations. Since some programs are new, their unaccredited status is understandable. But others have been in existence for years. *It should be a goal of the State to achieve full accreditation of all programs, and each institution should place higher priority on meeting the standards for accreditation of its existing programs before initiating any others.*

The fact that Tennessee institutions maintain a full range of programs on less financial support than is available to comparable schools in many neighboring states indicates that they operate relatively efficiently. But as higher education becomes more costly, it will be necessary for the colleges and universities to place even more emphasis on efficiency. New programs will need to be clearly justified, and enrollment must be assured. Existing programs must be reviewed constantly to determine if enrollment and production are sufficient to continue them. Operating costs should be subjected to continuing analysis, and procedures should be modified toward the most economical operation consistent with highest quality education. *The higher education institutions owe the people of Tennessee an efficient and responsible operation.*

Just as the past decade was a period of growth for colleges, the next will be a period of change. This will affect the needs of instruction, the requirements for degrees, the duration of enrollments, the locations where students may earn credit, and virtually all aspects of academic life. A break with traditional methods has already begun in several areas:

(1) There are more working adults in evening study.

(2) More courses are being taken off campus to where they work and live.

(3) [illegible] allowance of college credit for knowledge gained through independent study or work experience.

(4) More determination by the student as to what he will study.

The institutions must justify their practices on grounds other than tradition. They must insure that what they require of students is related to the work they will do and to the lives they will live. *The coming period of educational change will require a high degree of flexibility by those within the institutions, as well as by those who support higher education.*

These goals for higher education are general, but also fundamental. They will be spelled out in more detail in the remaining sections of this Master Plan, and in subsequent reports. In view of Tennessee's needs to continue its industrialization, its economic development, and its social progress in harnessing technology for the improvement of life in the State, higher education cannot afford to fall short of these goals.

The 39 private institutions in the State, like Martin College, educate about 18,000 Tennesseans each year.

EXPANSION OF EDUCATIONAL OPPORTUNITY

SUMMARY

College enrollments in Tennessee are expected to grow until 1980 and then level off. Enrollments at public and private institutions totaled 58,000 in 1960 and 133,000 in 1970. The college-age population (18 to 24) increased from 340,000 in 1960 to 470,000 in 1970.

Enrollments grew more rapidly between 1960 and 1970 than the college-age population because more young people sought a college education, and the State created a new system of community colleges and technical institutes which expanded educational opportunities.

It is estimated that enrollments will reach 171,000 to 189,000 by 1980 and 174,000 to 195,000 by 1985. On the other hand, the college-age population is expected to grow only 10 per cent between 1970 and 1980 to 518,000 persons, and then decline to 486,000 by 1985.

Most of the future growth is expected to be in community colleges and technical institutes, with little in the private sector. The projected growth assumes that nearly all students in the upper half of high school graduating classes will attend college, and that about 65 per cent of all high school graduates in 1980 will attend a four-year institution or community college Currently, about 55 per cent of the high school graduates attend college.

These estimates also assume a big increase in college attendance by older adults. By 1980, at least a third of the university and community college students will be adults over 22, many attending part time.

Much of the graduate and professional enrollment growth will take place at Memphis State University and UT Knoxville.

Almost all enrollment increases among Tennessee students from 1963 to 1970 occurred at public institutions. This is probably due to economics, since Tennesseans attending private institutions or out-of-state colleges pay from $800 to $2,500 more each year in tuition and fees.

The number of out-of-state students in Tennessee institutions is leveling off: 18 per cent of the total public enrollment in 1963, but only 11 per cent in 1972. Economics, again, is responsible, since non-resident tuition in the State's public institutions has been increased yearly to assure that out-of-state students will pay most of the cost of their education.

In 1970, nearly four of five Tennessee youth completed high school; two of five went to college immediately; and one in five are expected to graduate. The national average for completing college is one in four.

There have always been more male than female college students. In addition, blacks and persons from low-income backgrounds are less likely to attend. The men-women ratio cannot be attributed to ability or family income, but to different motivations and expectations which students have about college.

On the other hand, students with motivation have not attended college because of discrimination or lack of funds. For instance, 17 per cent of all Tennessee families reported less than a $3,000 income in 1969, but only 12 per cent of the college freshmen was from this group. Twenty-two per cent of the families had an income ranging from $3,000 to $6,000 a year, but only 20 per cent of this group attended college.

Loans, direct grants and work opportunities have assisted low-income students to attend college. Such aid increased from $37 million in 1967-68 to $58 million in 1970-71, but this was due mostly to increased veterans' benefits.

In 1972, Tennessee funded the Tuition Grant Program with $1.2 million, and about 2,600 students benefitted from this program in the 1972-73 academic year. The development of community colleges, which offer low-cost education for commuting students, has also expanded educational opportunities.

Black enrollment (resident and non-resident) grew from 7,000 in 1960--practically all at one public black institution and seven private black colleges—to more than 15,000 in 1970; 9,000 attending seven predominantly black colleges and 6,000 predominantly white institutions. But the percentage of all students who are black declined from 12 in 1960 to 11 in 1970, even though 15 per cent of the college-age population was black in 1970.

Estimates of black Tennesseans attending public institutions indicate they were 8 per cent of enrollment in 1963 and 11 per cent in 1970. Although this reflects progress, more must be accomplished. The former all-white public institutions have shown the greatest progress in desegregation. They had almost no black enrollment in 1960; 3,900 in 1969; and 6,600 in 1972. Of the 8,000 increase in black enrollment during the decade, more than 4,600 were at predominantly white public institutions.

If 15 per cent of the college enrollment is black in 1980, an increase in enrollment of blacks to 26,000 or 29,000 will be required, or double the 15,000 of 1970. Private black institutions will add only about a thousand students if they grow by 20 per cent. If Tennessee State University grows through the addition of white students, then 10,000 to 13,000 additional blacks will have to be enrolled in other public universities, community colleges and private colleges. To achieve this goal, however, continued expansion of financial support for low-income black students will be necessary.

A very rapid expansion of higher education enrollment occurred in the past decade. There also was an increase in the proportion of young people who went to college. In 1970, nearly four out of five Tennessee youth completed high school, two of five went to college immediately, and one in five is expected to graduate. The national average for completing college is one in four. Although enrollments have been expanded significantly, continued efforts will be necessary to expand educational opportunity

Enrollment patterns indicate that colleges always had more male than female students. In addition, persons from low-income backgrounds and blacks are less likely to attend. In the past decade, substantial efforts have been made to eliminate some of these differential opportunities, but some differences remain in spite of such efforts. An important task for the seventies is to provide equal educational opportunity for every young person regardless of race, sex or family income.

This does not imply that everyone will attend college or that all differences in attendance rates will disappear. The difference in enrollment rates of men and women cannot be attributed to family income or ability, although girls actually make better grades than boys in high school. Instead, they represent different motivations and expectations which students have about college. On the other hand, some students with motivation have not attended college because of discrimination or lack of funds. For instance, 17 per cent of all Tennessee families reported less than $3,000 in income in 1969, but only 12 per cent of the college freshmen came from this group. Twenty-two per cent of the families had an income ranging from $3,000 to $6,000, but only 20 per cent of this group went to college.

Major efforts have been made by the Federal government, the institutions and states to provide student aid through loans, direct grants, and work opportunities, so that low-income students could attend college. In Tennessee, student aid increased from $37 million in 1967-68 to $58 million in 1970-71; a 57 per cent increase. Much of the increase was in veterans' benefits, which grew from $4.2 to $15.7 million in those three years as the number of veterans who enrolled nearly tripled. Other Federal assistance also increased greatly (see Table 1), but state and institutional support was about the same in 1967 and 1970. Average aid per student, exclusive of G.I. bill benefits, rose about the same rate as inflation during the three-year period (see Table 2), and the number of students aided increased only slightly faster than the growth in enrollment. The bulk of increased student aid in 1970-71 resulted from increased veterans' benefits.

It is evident that more needs to be accomplished at the State level to expand educational opportunities for low-income youth. The State funded a Tuition Grant Program in 1972 which provides grants to students on the basis of need. This program aided about 2,000 students in fall of 1972. Tennessee also has developed community colleges—which, by their assigned role, broaden the traditional meaning of the term "college"—and these institutions provide low-cost education for students who live at home and commute. Both efforts expanded educational opportunity in the State, and they can be further expanded so that financial barriers to college attendance will be virtually eliminated.

TABLE 1

SOURCES OF STUDENT FINANCIAL AID STATEWIDE, BY PUBLIC INSTITUTIONS, AND BY PRIVATE INSTITUTIONS, 1967-68 and 1970-71 (In Thousands)

STATEWIDE

Source	*1967-68*	*1970-71*	*Per Cent Increase*
Federally-assisted	$18,853	$39,454	109.3
General	14,665	23,773	62.1
G.I. Bill	4,188	15,680	274.4
State and Institutionally-Supported	17,000	17,123	.7
Non-Institutionally Supported	989	1,201	21.5

PUBLIC INSTITUTIONS

Source	*1967-68*	*1970-71*	*Per Cent Increase*
Federally-assisted	$11,139	$24,803	122.7
General	8,071	12,068	49.5
G.I. Bill	3,068	12,734	315.1
State and Institutionally-Supported	8,917	6,347	-28.8
Non-Institutionally Supported	375	478	27.5

PRIVATE INSTITUTIONS

Source	*1967-68*	*1970-71*	*Per Cent Increase*
Federally-assisted	$ 7,714	$14,651	89.9
General	6,593	11,705	77.5
G.I. Bill	1,120	2,946	162.9
State and Institutionally Supported	8,083	10,775	33.3
Non-Institutionally Supported	613	723	17.8

TABLE 2

STUDENT FINANCIAL AID PER FULL-TIME STUDENT ENROLLED, 1967-68 AND 1970-71

Aid per full-time student enrolled (including aid on G.I. Bill)	*1967-68*	*1970-71*	*Per Cent Increase*
Total	$396.80	$558 23	40.7
Public	335.31	451.00	34.5
Private	514.19	783.54	52.4
Aid per full-time student enrolled (excluding aid on G.I. Bill)	*1967-68*	*1970-71*	*Per Cent Increase*
Total	$351.69	$406 73	15.7
Public	284.96	269.41	--5.5
Private	479.08	695.27	45.1

An important educational opportunity link requiring early attention in Tennessee is a more unified counseling effort at all public educational levels and by governmental units providing such services. State and local leadership should formalize relationships among local counseling services through development of comprehensive counseling centers or organizations. Historically, the training, orientation and role perception of counselors has been specialized; vocational counselors, academic counselors, etc., each serving students in different ways. This approach limits utilization of a comprehensive approach to expansion of educational opportunities. An expanded counseling service that recognizes the wide range of post-secondary opportunities, and helps students to attend the type of institution best suited to their needs, could help more Tennessee youth to take advantage of the educational opportunities that already exist.

EDUCATIONAL OPPORTUNITIES FOR BLACKS

The number of black students attending college more than doubled between 1960 and 1970. There were slightly less than ',000 students in 1960, virtually all of whom were attending the seven private black institutions and one public black college. In 1970 there were more than 15,000 black students; 9 000 attending the seven predominantly black colleges and about 6,000 enrolled at predominantly white institutions. By 1972, about 7 000 blacks were attending predominantly white colleges, and the number attending predominantly black institutions remained about 9 000.

Although the increase in black college enrollment was quite rapid during the past decade, the rise in white enrollment was even more rapid. As a result, the percentage of college students who were black actually declined slightly during the decade, from 12 per cent in 1960 to 11 per cent in 1970. Since blacks comprised about 15 per cent of the college-age population in the State in 1970, it is obvious that they are under-represented in higher education.

It may appear that opportunities for black Tennesseans to attend college have not improved during the past decade because about 12 per cent of the college students in 1960 were black, compared to 11 per cent in 1970. These figures include both in-state and out-of-state students, and the number of out-of-state students enrolled at Tennessee State University, Fisk University, and other black colleges was very high in 1960 Estimates of the percentage of black Tennesseans attending public institutions indicate that eight per cent of the Tennesseans in the public institutions in 1963 were black, while in 1970 this percentage had risen to 11.

While these figures indicate that some progress has been made in enrolling blacks during the past decade, more remains to be accomplished. The formerly all-white public institutions have made the most rapid progress in desegregation. In 1960 they had no black enrollment; by 1969 there were 3,000 black students; and by 1972 they had 6,600 Black enrollment increased about 8,000 during the decade, and more than 4,600 of that increase was in the predominantly white public institutions.

What, then, is necessary to raise the college enrollment of blacks to the level of the whites? If 15 per cent of the college enrollment in 1980 is black, an increase in black enrollment to 26,000--29,000 will be required. This is about double the 15,000 blacks enrolled in 1970. If the private black institutions grow 20 per cent, they will add only about 1,000 students. And, if Tennessee State grows through the addition of white students, then 10,000--13,000 additional blacks will have to be enrolled in the other public universities, community colleges and private colleges This appears to be a realistic goal in view of the rate of increase in black enrollment during the past two years in public institutions. The State should strive to reach this goal.

Achievement of the goal of equal educational participation of blacks will require continued expansion of financial support for low-income students. Most blacks come from low income families and they must have financial help if they are to attend college.

If we eliminate the barriers to college attendance, it is expected that college attendance will continue to grow. Projections are always subject to considerable margin of error because conditions and circumstances change, and because students frequently change their minds about attending college or dropping out of school. The following projections have been carefully prepared, but they still are subject to large margin of error, particularly after 1978

TABLE 3

COLLEGE-AGE POPULATION AND COLLEGE ENROLLMENT IN TENNESSEE FOR SELECTED YEARS, 1960-85 (In Thousands)

Year	*Population**	*Total Enrollment***	*Enrollment As % of Population*	*Public Enrollment***	*Private Enrollment*
1960	340	58	17%	33	25
1965	428	100	23%	64	36
1970	470	133	28%	97	36
1972	481	147	30%	111	36
1975	498	156-166	31-33%	120-128	36-38
1980	518	171-189	33-36%	135-149	36-40
1985	486	174-195	36-40%	138-153	36-42

*Census Projections from Series P-25, No. 375, Series II-D adjusted to actual 1970 census figures.
**Enrollment figures are fall term headcount totals. Public enrollment includes Technical Institutes.

ENROLLMENT PROJECTIONS

College enrollments in Tennessee are expected to grow until 1980 and then level off. The college-age population (18 to 24) in Tennessee has increased rapidly in the last decade, from 340,000 persons in 1960 to 470,000 in 1970. In the next decade, the number will rise much more slowly to about 518,000 in 1980, and then it will decline to 486,000 by 1985. Table 3 shows actual and projected college-age populations and enrollments in Tennessee for selected years 1960-85.

The college-age population grew 38 per cent between 1960 and 1970, but will grow only 10 per cent between 1970 and 1980 and then decline between 1980 and 1985. College enrollment grew more rapidly between 1960 and 1970 than the college-age population for two reasons: more young people were seeking a college education, and the State created a new system of community colleges and technical institutes which expanded educational opportunities.

The number of youth attending college increased about one per cent per year in Tennessee and the nation during the last decade. In 1970, the ratio of enrollment to population of persons 18 to 24 years old was 32 per cent for the nation and 28 per cent in Tennessee. Figure 1 shows the percentages of youth attending college in Tennessee and the nation for 1960, 1965 and 1970.

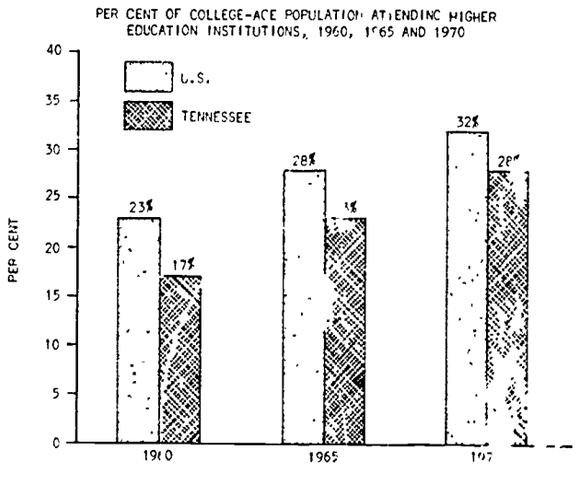


Figure 1

Cleveland State Community College students share a bench during a break from the classroom and study routine.

Tennessee college enrollment, by 1975, should grow about 23,000 beyond the 133,000 enrolled in 1970, if no additional community colleges are added. The projections of college enrollment in Table 3 are based on continued expansion of the community college system, and they indicate that enrollment in 1975 may reach 166,000 or about 33,000 more than in 1970. Total enrollment figures in Table 3 include out-of-state students. Consequently, enrollment of Tennesseans is about 20,000 lower than the figures indicate because more non-resident students enroll in Tennessee institutions than Tennesseans enrolled in out-of-state institutions. Table 4 shows the number and percentage of Tennessee students in public and private Tennessee institutions, and out-of-state institutions for 1963-1970.

Almost all enrollment increases among Tennessee students from 1963 to 1972 occurred in the State's public institutions. Economics undoubtedly played an important part in this trend, since Tennesseans attending private Tennessee colleges or out-of-state institutions pay substantially more ($800 to $2,500 a year) in tuition and fees than those attending State public institutions. The number of Tennessee students attending both out-of-state institutions and Tennessee private

TABLE 4

TENNESSEE RESIDENTS ENROLLED IN STATE PUBLIC AND PRIVATE INSTITUTIONS, AND OUT-OF-STATE INSTITUTIONS, 1963-72

Year	Total	Public Institutions In Tennessee	Private Institutions In Tennessee	Out-of-State Institutions
		Number of Students		
1963	63,000	37,000	15,000	11,000
1968	97,000	67,000	17,000	13,000
1970	110,000	81,000	15,000	14,000*
1972	123,000*	95,000	15,000	13,000
		Per Cent of Students		
1963	100%	59%	24%	17%
1968	100%	69%	18%	13%
1970	100%	74%	14%	12%
1972	100%	77%	12%	11%

* Estimated

TABLE 5

OUT-OF-STATE STUDENTS ENROLLED IN TENNESSEE INSTITUTIONS, 1963-72

Year	Total	Per Cent of Total Enrollment	In Public Institutions	Per Cent of Total Public Enrollment	In Private Institutions	Per Cent of Total Private Enrollment
1963	22,000	35%	8,000	22%	14,000	49%
1968	33,000	34%	13,000	19%	20,000	54%
1970	32,000	29%	12,000	15%	20,000	57%
1972	30,000	24%	11,000	11%	19,000	52%

colleges is leveling off. Table 5 shows the number and per cent of out-of-state students enrolled in Tennessee. The number of non-resident students enrolled in Tennessee institutions decreased from 1968 to 1972, and the percentage of out-of-state students in public institutions decreased steadily from 1963 to 1972. Economics probably played a part in this trend too. Out-of-state tuition in Tennessee's public institutions, considerably below the national and southern regional averages in 1963, have been increased for the last three years in an effort to charge non-resident students more nearly the cost of their education.

Table 6 shows actual headcount enrollment and projections by four State higher education systems: the UT System, Regents Universities, Community Colleges, and private institutions for selected years, 1960-85.

These projections indicate that most future growth will be in the community college and technical institute system, and very little is likely to occur in the private sector. The growth projected for four-year universities assumes that nearly all students in the top half of their high school graduating classes will attend college, and that about 60-65 per cent of all high school graduates in 1980 will be going to a four-year institution or community college. At present, only about 55 per cent of the high school graduates attend college. The projections also assume that there will be a large

TABLE 6

HEADCOUNT ENROLLMENT PROJECTIONS BY SYSTEM, 1960-85

Year	UT System	Regents' Universities	Community Colleges and Technical Institutes	Private Institutions	Total
1960	13,000	20,000		25,000	58,000
1970	38,000	50,000	9,000	36,000	133,000
1972	42,000	54,000	15,000	36,000	147,000
1975	46-48,000	56-58,000	18-22,000	36-38,000	156-166,000
1980	50-54,000	60-65,000	25-30,000	36-40,000	171-189,000
1985	50-54,000	60-65,000	28-34,000	36-42,000	174-195,000

TABLE 7

GRADUATE AND PROFESSIONAL HEADCOUNT ENROLLMENT AND PROJECTIONS FOR SELECTED YEARS, 1960-85

Regents' Universities	*1960*	*1970*	*1972*	*1975*	*1980-85*
Austin Peay	42	319	374	450	500-700
East Tennessee	248	987	1,346	1,600	1,800-2,000
Memphis State	324	3,128	4,003	5,000	5,000-6,000
Middle Tennessee	132	877	1,377	1,700	1,800-2,100
Tennessee State	144	304	441	550	600-800
Tennessee Tech	48	506	768	900	1,000-1,200
Total	938	6,121	8,309	10,200	10,700-12,800
UT System					
UT Knoxville	1,791	4,885	5,843	7,000	7,000-8,000
UT Chattanooga	—	157	482	600	800-1,100
UT Martin	—	211	360	500	500-700
UT Nashville	—	156	503	700	800-1,000
UT Medical Units	1,491	1,738	1,733	1,900	2,000-2,100
Total	3,282	7,147	8,921	10,700	11,100-12,900
Total All Institutions	4,220	13,268	17,230	20,900	21,800-25,700

TABLE 8

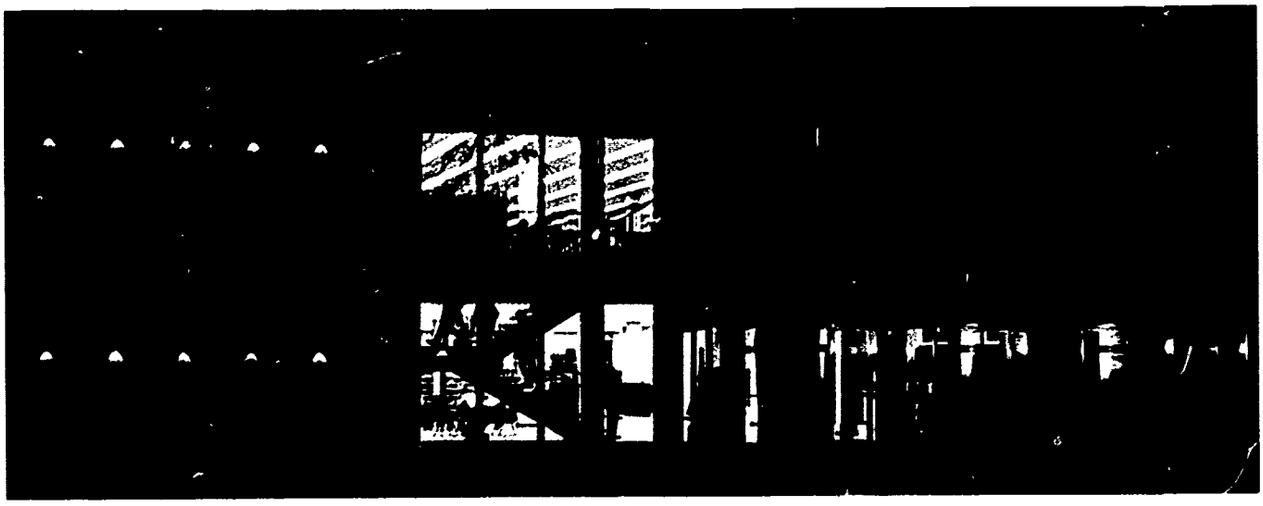
PROJECTIONS OF FULL-TIME-EQUIVALENT ENROLLMENT BY PUBLIC INSTITUTIONS, 1970-80

	ACTUAL			PROJECTED		
Institutions	*1970*	*1971*	*1972*	*1973*	*1975*	*1980*
Austin Peay	3,271	3,378	3,137	3,200	3,400	3,500- 4,500
East Tennessee	7,940	8,107	8,028	8,200	8,500	9,000-11,000
Memphis State	14,667	15,262	15,157	15,450	15,900	17,000-20,000
Middle Tennessee	7,765	8,226	8,557	8,800	9,400	10,000-12,000
Tennessee State	4,539	4,375	4 418	4,500	4,700	5,000- 6,000
Tennessee Tech	5,903	5,959	6 102	6,250	6,500	6,800- 7,000
Total	44,085	45,307	45,429	46,400	48,400	51,300-60,500
Cleveland	1,409	1,506	1,516	1,550	1,600	1,650- 1,800
Columbia	1,226	1,201	1,007	1,050	1,150	1,200- 1,400
Dyersburg	514	564	569	600	700	750- 900
Jackson	1,047	1,050	1,034	1,050	1,100	1,200- 1,500
Motlow	600	685	650	700	800	900- 1,100
Roane	—	235	578	700	900	1,000- 1,200
Shelby*	1,287+	1,161+	2,271	3,000[1]	4,500	5,000- 7,000
Volunteer	—	446	1,023	1,300	1,600	1,700- 2,000
Walters	255	745	931	1,000	1,200	1,200- 1,500
Nashville*	333+	514+	423	500	800	3,000- 3,500
Chattanooga*	815+	876+	850	900	1,500	2,000- 2,500
Knoxville	—	—	—	—	700	2,000 - 2,500
Total	7,486	8,983	10,852	12,350	16,550	21,600- 27,500
UT Knoxville	21,693	22,605	23,339	23,900	25,000	26,000- 27,500
UT Chattanooga	3,639	3,960	3,983	4,100	4,800	5,000- 7,000
UT Martin	4,525	4,703	4,724	4,800	5,000	5,000- 6,000
UT Nashville	940	1,353	1,763	2,000	2,700	3,500- 4,000
UT Medical Units	1,702	1,735	1,684	1,700	1,800	2,000- 2,100
Total	32,499	34,356	35,493	36,500	39,300	42,000-46,600
All Institutions	84,070	88,646	91,774	95,250	104,250	114,900-134,000

*Community College and Technical Institute enrollments combined in this table; projected enrollments assume a Chattanooga Community College program will be developed in fall of 1974 and in Nashville by fall of 1975.

+ Technical Institute only; FTE enrollment is estimated.

[1] 1,400 for Shelby and 1,600 for Technical Institute.



F. G. Woodward Library at Austin Peay State University in Clarksville is a picturesque view during late hours.

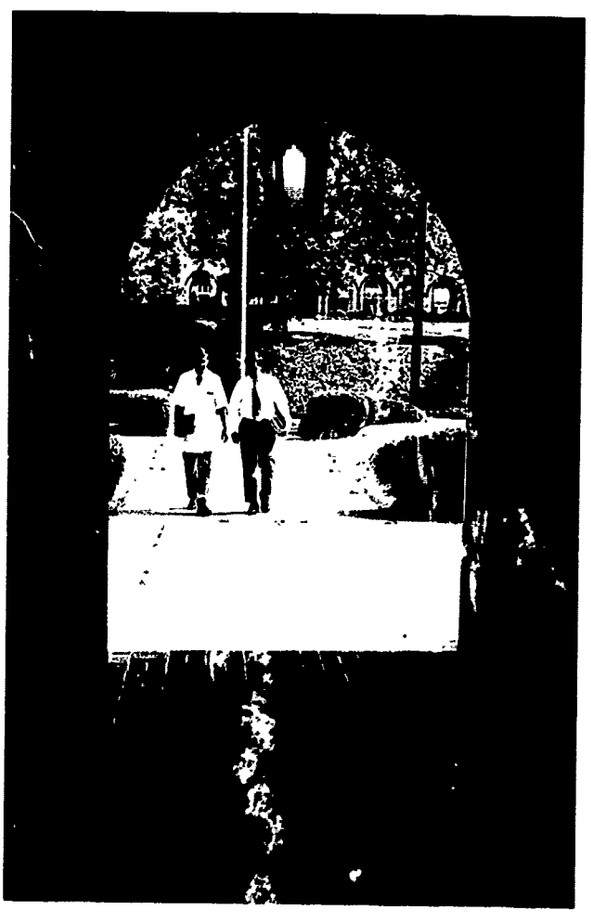
increase in college attendance by older adults, and that by 1980 at least a third of the university and community college students will be adults over 22, many attending on a part-time basis.

Another trend has been the growth in graduate enrollment at the State's public colleges and universities. Table 7 shows actual headcount enrollment and projections by institutions for selected years, 1960-85.

Much of the growth in graduate and professional enrollment will be at Memphis State and UT Knoxville, but other universities are likely to grow too. The numerical increase in graduate enrollment from 1970 to 1980-85 will be approximately equivalent to the 1960-70 increase.

Of more pertinence for budgetary planning are the projections of full-time equivalent enrollments which give a more accurate indication of the requirements for funds. Table 8 shows actual and full-time equivalent enrollment projections for each public institution for 1970-80.

Students gather near the entrance to the new building at the University of Tennessee at Nashville.



Above, the University Center at Tennessee Tech. Left, future health practitioners on their way to class at UT Medical Units. Below, Tennessee State Tigers in action.

GOVERNANCE OF HIGHER EDUCATION

SUMMARY

The governance structure of Tennessee's educational system includes the Higher Education Commission as the coordinating body for higher education; the UT Board of Trustees which administers campuses at Knoxville, Chattanooga, Martin, Nashville and Memphis; the new Board of Regents which governs the six regional universities and nine community colleges; and the State Board of Education which now is concerned with grades K-12 and the vocational schools.

A joint planning effort between the State Board and the Commission is suggested to attain equity in budget requests for all of education, and to formulate consistent goals for improvement of education at all levels.

There is also a need for more effective coordination of vocational education between higher education and grades K-12. Occasional meetings between the Advisory Council for Vocational Education, the Commission, Regents, and UT Trustees are recommended to coordinate the various vocational programs. In addition, effective relationships are also needed between vocational schools, high schools, and adjacent community colleges to attain maximum efficiency. Coordination of these efforts might be enhanced by developing a comparable system of measuring costs, enrollments, and graduates for assessing program effectiveness.

Just as important is the relationship between the State's public and private higher education institutions, and the plans of both groups must be considered in the overall plan for the State. A full exchange of information can prevent overlapping and duplication of programs, and avoid wasteful competition. The Commission has established an advisory committee from the private sector to consider matters of mutual interest.

The colleges and universities in Tennessee generally have been well managed, partly out of necessity because they have had less funds on which to operate than most comparable institutions in neighboring states. Despite this record of careful money management, there has been an increasing level of public interest for the past 15 years in how well the institutions were run. Discussion about reorganizing and restructuring higher education has led to two major changes in governing board structure in the past five years.

The interest in governance involves two major areas. The first—responsive government of higher education —is reflected in the concern of students, citizens and faculty about the internal management of colleges and universities. Students and faculty desire more involvement in the planning and decision making, and this has led to more participation by students and faculty in the internal affairs of the institutions. Citizens, on the other hand, want a more efficient operation as well as institutions that are orderly.

The second area is a concern about coordination; that is, the way the system of institutions in Tennessee is coordinated and managed. This concern led to the creation of the Tennessee Higher Education Commission in 1967 and the Board of Regents in 1972.

This chapter discusses the statewide system of coordination and governance. It reviews the progress made to date, and points out some unresolved problems and issues.

A 1958 study of education in Tennessee indicated the need for better coordination and State-level oversight of the colleges under the State Board of Education. It also recommended better coordination with University of Tennessee which had its own Board of Trustees. At that time, the system of higher education in Tennessee was organized as shown in Figure 2. There were fewer students in all public institutions then than there are today on the UT Knoxville campus, and State appropriations for higher education were about one-eighth of today's level.

As a result of the 1958 study, a staff was organized in the Department of Education to help the Commissioner of Education deal with the affairs of the colleges, but interest in changes in governance continued The Legislative Council in 1964 made a study of possible improvements in governance, but it did not recommend a specific plan because of a variety of different views.

The General Assembly took a major step in 1967 and created the Tennessee Higher Education Commission to provide coordination and planning for all of higher education in the State. By this time, the State had begun a system of vocational schools and a system of community colleges to provide a comprehensive system of post-secondary education. Responsibility

TENNESSEE'S EDUCATION SYSTEM IN 1958

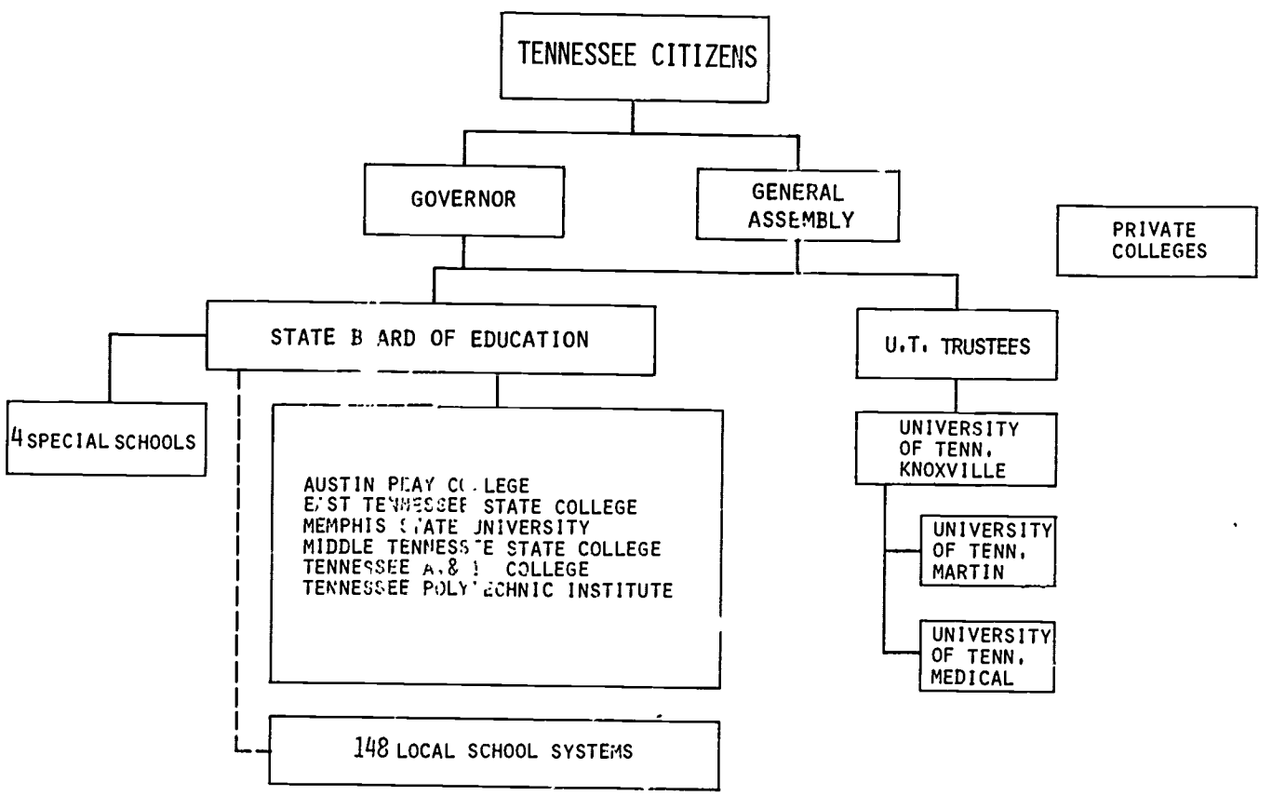


Figure 2

TENNSSEE'S EDUCATION SYSTEM IN 1972

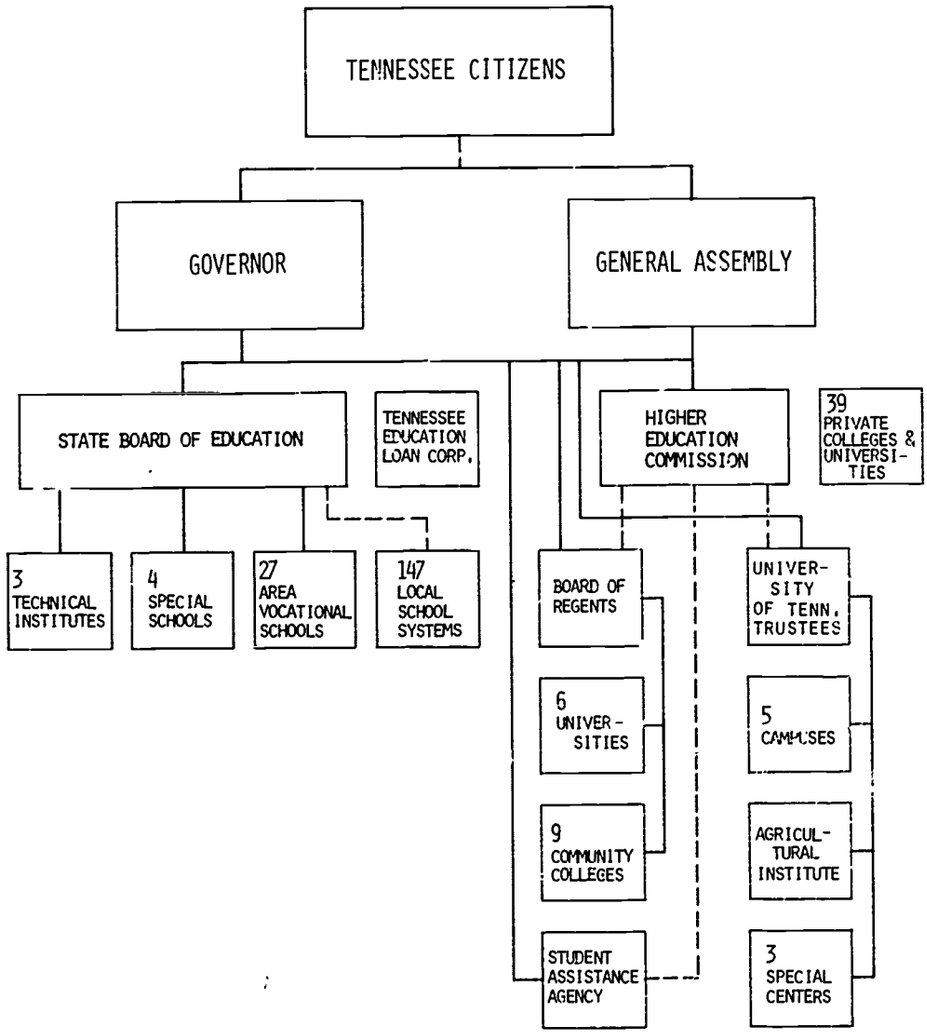


Figure 3

for both systems was given to the State Board of Education. All colleges under the State Board were designated universities, and UT was considering the establishment of new campuses at Chattanooga and Nashville.

The Higher Education Commission, recognizing the rapid growth of higher education and the greatly increased responsibilities of the State Board of Education, recommended in 1969 that two new operating boards be established for the six universities and the community colleges. This proposal was opposed by the State Board, but the issue of effective governance remained.

About that time, University of Tennessee established a system administration to provide better governance of its campuses and centers. Finally, in 1972, in response to a special study committee set up by Governor Winfield Dunn, the General Assembly created a new Board of Regents to govern the six universities and nine community colleges which were under the State Board of Education. The governance structure of education, currently, is shown in Figure 3.

Presently, the State Board of Education has coordinating and policy-making responsibilities for 147 local school systems, each with its own board. In addition, it governs the four special schools, 27 area vocational schools, and three technical institutes. The institutes are on the college level, and their program offerings include occupational programs which are also offered by community colleges.

The Higher Education Commission has the responsibility of coordinating and planning for all of higher education. It has no operating responsibilities, although it must approve new academic programs, new centers or campuses; review budgets; perform long-range planning; and generally ensure that a comprehensive system of higher education is developed to meet the needs of the citizens. The UT Board of Trustees is responsible for the operation of five UT campuses and statewide agricultural and service programs.

The new Board of Regents is responsible for operating the nine community colleges and six universities. There are also 39 private colleges and universities which are chartered by the State but have no formal connection with it, but they provide education for about 18,000 Tennesseans. Their role in higher education is an important one and needs to be preserved.

It is important to distinguish between governing responsibilities—which involve the direct operation of schools and colleges—and coordinating responsibilities —which involve issues of general policy, planning future direction, and assuring that education is not over-developed in some areas while being neglected in others.

As a general principle, governing responsibilities should be kept close to the programs and services at the institutional level, while coordinating responsibilities should encompass all of the units in the system. If it is a State system, then coordination should occur at the State level and involve all institutions providing programs at the college level. Governance can occur at a multi-institutional level, but the further away it gets from the campus, the more difficult it is to relate to the unique problems and differences in each institution.

Tennessee's two governing boards in higher education, the UT Trustees and the Board of Regents, each have about as many institutions as one board can know well and govern effectively. It may be desirable to set up a separate governing board for the community colleges in the future so that the number of institutions which each board governs will be small enough so that its members can be well acquainted with each campus under its jurisdiction

Tennessee's system of governance and coordination of education now is more like that of neighboring states Since it also reflects the history and special circumstances of Tennessee education, it has some special characteristics The main features of the system are sound and additional major changes should be avoided so that the new Board of Regents has an opportunity to establish itself, and so that the State Board of Education can concentrate more on the policy problems and needs of grades 1—12.

There are several problems that need to be resolved:

(1) There should be more effective planning and coordinating of budgets for all education in Tennessee. The State Board of Education has the planning and policy responsibility for grades 1—12 and vocational education, while the Higher Education Commission has planning and budget coordinating responsibilities

Members of the Tennessee Higher Education Commission seated left to right: Scott L. Probasco, Jr., Mrs. Sarah E. Hankins, John R. Long, Jr. (chairman), and Glenn Rainey. Standing left to right: Dr. Roland H. Myers, Rev. T. B. Boyd, Jr., John K. Folger (executive director), E. Bruce Foster, Walter P. Armstrong and John M. Jones.

The University of Tennessee Board of Trustees, seated from the left, include Clyde M. York, Leonard Raulston, Ben Douglass, Frank R. Ahlgren, Wayne Fisher, E. Boyd Garrett, John K. Folyer, Eduard J. Boling, Herbert S. Walters, William E. Miller, Dr. Marcus J. Stewart, Paul J. Kinser, Guilford Thornton, Tom Elam, E. S. Bevins, Jr., Don O. Shadow, and Dr. Frank P. Bowyer. Absent were Governor Winfield Dunn (chairman), Ann Baker Furrow, Harry W. Laughlin, and the Commissioner of Education. Standing are UT staff members.

in higher education. The two are coordinated through the Governor's office and through the executive budget. There should be, however, joint planning to obtain equity in budget requests for all areas of education, and to formulate consistent goals for the improvement of education at all levels.

One proposal for achieving this coordination has been to establish a single board for all of education. This approach has not worked well in medium-sized and large states like Michigan, Pennsylvania, and Florida. It has worked in small states like Idaho and Montana, but it is too early to determine how it will work in Rhode Island which recently established a single board. Education is such a large and complex operation today that a single board would have to give superficial attention to many issues, thereby giving limited attention to any one problem. In addition, there are very few personnel experienced in both public school and higher education administration. For these reasons, a single board might create more problems for Tennessee than it would resolve.

Several ways are suggested for achieving more effective coordination among the various areas of education:

(a) Place the Governor and Commissioner of Education on the Higher Education Commission, and leave the Commission's Executive Director on the State Board of Education. This was proposed to the 1972 General Assembly by the administration, and it passed in the House but not in the Senate.

(b) Provide for at least one joint meeting annually between the State Board of Education and the Higher Education Commission for budget planning. The Commissioner of Finance and the Governor, currently, coordinate all budgets, but the Board and Commission could establish guidelines for budget development which would promote a unified approach to budgeting and appropriation requests.

(c) Planning for education needs to cover all levels of education. The Higher Education Commission's Master Plan for the colleges and universities provides guidelines for program development, financial support, and capital outlay needs for the next decade. A similar set of guidelines is needed for grades 1—12 and the vocational schools, and the two plans should be kept up to date and be consistent with each other.

(2) There is a need for more effective coordination of vocational education with higher education and grades 1--12. The State has established a system of vocational schools, and the legislature is urging its expansion. At the same time, however, there is competition and some duplication of effort between vocational programs in the high schools, the new vocational-technical schools, technical institutes and vocational programs in the colleges. This problem is inherent because all parts of education are vocational, but it indicates the importance of more effective planning and coordination of such efforts.

This problem requires no major restructuring of education. Federal guidelines require that each state establish a State Board for Vocational Education, and Tennessee has designated the State Board of Education to serve also as the Vocational Board. This arrangement should assure adequate coordination of

Members of the Board of Regents seated from the left: Guilford Thornton, James H. Jones, Jr., Johnella H. Martin, Governor Winfield Dunn (chairman), Ella V. Ross, E. C. Stimbert (succeeded by Benjamin E. Carmichael), and J. Frank Taylor. Standing from the left: Dale Glover, Charles J. Liner, John K. Folger, Dr. Kenneth Ezell, Ben Kimbrough, David White and C. N. Berry. George M. Klepper, Jr. and J. Howard Werf not present.

high school and area vocational school programs. The Board of Regents is responsible for vocational programs in the community colleges, and consideration should be given to adding Regents' representatives to the State Board for Vocational Education.

Federal law also provides for a State Advisory Council for Vocational Education which is representative of many viewpoints and provides advice to the State Board for Vocational Education. To fully implement its advisory functions in post-secondary education, the Advisory Council ought to meet occasionally with the Higher Education Commission, the Board of Regents and the U of T Trustees.

Of more importance in the long run is the effective coordination of the State's vocational education efforts through the development of a comparable system of measuring costs, enrollments, and graduates so that a basis for assessment of program effectiveness is possible. For example, it is possible to learn stenographic skills in high schools, vocational schools, in community colleges, or in a university, although the universities are de-emphasizing this type of training. Is this needless duplication or a desirable method of expanding opportunities to get into an important, high demand occupation? Is it less expensive to train a stenographer in a vocational school or in high school? Does the college-trained product perform better than the vocational school graduate? These questions cannot be answered satisfactorily with present information. Until it is possible to do so the education system will be designed by hunch and by the political strength of the various advocates of one approach or another. What is needed is a better information system so that the General Assembly and Governor can make better judgments about the relative needs in different areas of the educational system.

Some communities in the State are working out effective relationships between vocational schools, high school vocational programs, and nearby community college vocational programs. Others have not done as much. Until these relationships can be effectively coordinated at the local and State level, the type of vocational programs the State requires will not be achieved.

(3) A third problem concerns the relation of the private institutions to the public institutions. The plans of the private institutions need to be fitted into the overall plans for the State, but this can be accomplished only on a voluntary basis. A full exchange of information can help prevent overlapping and duplication as well as avoid wasteful competition. In this direction the Higher Education Commission established in 1971 an advisory committee of representatives from the private colleges to meet and advise with it on matters of mutual interest.

The problems of governance of education in Tennessee are not greatly different from those in the neighboring states. Tennessee has developed a system which is adapted to the needs of the State. It can be improved, but major or radical changes are not necessary at this time.

INSTITUTIONAL DEVELOPMENT

SUMMARY

There are four types of public colleges and universities in Tennessee. UT Knoxville and Memphis State University are expected to meet the need for comprehensive graduate and professional universities.

The seven regional campuses serve a more localized student body, and they offer programs in selected professional fields and graduate work at the master's level. No expansion of doctoral offerings at East Tennessee State, Middle Tennessee State or Tennessee Tech for the next five years should be anticipated. After that, any Ph.D. program must be justified in terms of the needs not being met elsewhere in the State.

The specialized campuses include UT Medical Units at Memphis which offer health professions education, and UT Nashville which is predominantly an adult evening and continuing education center.

Nine community colleges and the three technical institutes offer a variety of occupational programs, community service and continuing education programs, and the first two years of college.

Tennessee needs no other bachelor's degree-granting institutions in the foreseeable future.

Innovations are being urged for higher education, such as admitting more students with advanced standing; giving more credit for knowledge and skills gained outside the classroom; extending continuing education to older adults and to more citizens where they work and live; and providing course work related to the demands of a complex society and to particular vocations and professions.

The expansion of community college programs to Chattanooga, Knoxville and Nashville is recommended. A second State-supported medical school is not recommended for the next five years, but efforts should be made to retain the doctors which Tennessee trains. Recommendations to reduce the exportation of physicians to other states include the expansion of training for senior medical students, residents and interns to clinical centers at Knoxville, Chattanooga, the Tri-Cities, and Jackson; training more family physicians who will have an interest in practicing outside metropolitan areas; and making small towns more attractive to those who will practice. These alternatives could save Tennessee $20 to $40 million in capital outlay, and about $2 million in operating funds annually.

A strong system of private institutions is necessary to provide students a wider choice for education. Funding of the Tuition Grant Program for 1972-73 may help stem the enrollment decline for the private sector, as may expanded Federal programs of student assistance and institutional grants. In addition, contractual agreements with private institutions for specialized programs may be less expensive than developing additional programs at public institutions.

A more effective relationship is needed between UT Nashville and Tennessee State University, such as sharing faculty and facilities, more economical and effective educational programs through cooperation, and assigning responsibility for complete educational programs to a single institution. TSU needs to attract more white students to fight its declining black enrollment. Methods must be explored to prevent the decline of TSU, such as assigning major programs to this institution to serve the entire metropolitan area, and eliminating marginal programs so that resources could be used in making other programs strong and attractive.

The State's public institutions should become involved in public service and research as a means of maintaining close ties with all segments of the State. Off-campus programs for adults should be strengthened, but duplication should be avoided. A policy to coordinate off-campus programs has been established to expedite the institutions' response to community needs.

President David F. Adkisson makes a presentation at Cleveland State Community College ceremonies.

Tennessee is fortunate to have well-located institutions in all areas of the State. Each of Tennessee's four large metropolitan areas is served by a public university, and there is a public institution within a hundred miles of more than 99 per cent of Tennessee's population. *The State does not need to establish any other public bachelor's degree-granting institutions in the foreseeable future.*

The State has four types of public colleges and universities:

Comprehensive Universities: UT Knoxville is already a comprehensive university and Memphis State University is being developed into such an institution. For the foreseeable future, these institutions can meet the State's needs for comprehensive graduate institutions, and graduate programs beyond the master's degree should remain concentrated at these two schools.

Regional Universities. The seven regional campuses serve a more localized student body, and offer work in selected professional fields and graduate work at the master's degree level. Three institutions, East Tennessee State University, Middle Tennessee State University, and Tennessee Technological University, have limited doctoral-level work; each in a separate and specific area. There should be no expansion of their doctoral offerings during the next five years. After that, any expansion of doctoral programs must be justified in terms of needs that are not being met elsewhere in the State.

Specialized Campuses: The UT Medical Units in Memphis and UT Nashville are specialized campuses. The first is limited to health professions education, and the other is predominantly an adult and evening continuing education center.

Community colleges: There are nine community colleges and three technical institutes in Tennessee. Each community college offers a comprehensive program which includes occupational programs, community service and continuing education programs, and the first two years of college. The technical institutes offer occupational programs in engineering and scientific technologies, and they have expanded their offerings to include some other occupations. Since occupational programs are offered by community colleges and technical institutes, there must be careful coordination between them to avoid unnecessary duplication and overlap.

The State should continue to maintain a diverse system of public institutions to serve the needs of different types of students. Each type of institution should be maintained at a high level of quality, while retaining its distinctive character. In the past, there has been pressure to develop some regional universities into comprehensive institutions and some community colleges into four-year institutions. Such a development would tend to make the whole system mediocre, since the State does not need—nor can it afford—more than two comprehensive universities, nor does it need any more bachelor's degree-granting institutions.

In addition, there are 39 private institutions in Tennessee, ranging from complex universities to junior colleges. These institutions have provided an important service to Tennessee for many years, and they are currently educating about 18,000 Tennesseans at the undergraduate and graduate levels. Sound educational planning makes it important that their contribution be recognized, encouraged, and strengthened.

NEEDED DEVELOPMENTS

All public institutions should give additional attention to innovations in higher education. Colleges throughout the country are undergoing major changes in methods of instruction, the awarding of credit, time required for degrees, courses required and in many other areas which have been traditional and relatively unquestioned for years. Institutions should not be swept along in change for its own sake, but many current practices must be justified by something other than tradition. It is likely that our colleges will admit more students with advanced standing, awarding credit for demonstrated competence and thus avoid repetitious learning required in taking of introductory college courses. Recognizing that learning can occur in situations other than those found on campus, institutions will be awarding more credit for knowledge and skills which students gain outside the traditional classroom, once they are enrolled in college. The institutions will need to be engaged in more continuing education for older people, and to extend this instruction to places where individuals work and live. Curricular patterns and instructional techniques will change in recognition that formal educational experiences must be related more to the demands of a complex society and of particular vocations and professions, rather than to academic tradition. The methods by which higher education institutions operate will change much in the next decade, and it is important that Tennessee's colleges make their changes

Students check the sun dial on the quadrangle of the University of Tennessee at Chattanooga campus.

wisely. Just as the walls between campus and community will be breached, so will institutional barriers be lowered through the development of more joint and cooperative programs. All institutions should take care to maintain as much flexibility as possible so that students may move among them without loss of credit and effort.

Transfer of students between institutions should be facilitated and the public institutions should work toward a common calendar. With the development of more inter-institutional programs, the growing proportion of students attending community colleges for the first two years of their baccalaureate program, and the increasing mobility of the population, academic year calendar differences and restrictive transfer policies become hindrances to students in completing their programs.

Some institutions operate on the quarter plan, some on the traditional semester system, and others have adopted an "early semester" schedule. All institutions should work toward a common calendar, or at least similar calendars, so that students will be able to transfer without excessive difficulty or loss of credit.

Transferring students often encounter difficulties in applying their transferred credits to degree requirements. Although there have been some changes there is room for further improvement. What is needed is not commonality of curriculum, for there is a need for institutions to teach in different curricular patterns. There is, however, a need for development of transfer and articulation agreements which reduce significantly the problems faced by the transferring student.

The community college system should be expanded within the next three years to provide comprehensive community college programs in major metropolitan areas not now fully served (Chattanooga, Knoxville, and Nashville). Alternate methods of providing these programs are described elsewhere. Cost of this recommendation, as detailed in the financing section, would be about $8 million more in State appropriations over the next four years.

After the metropolitan areas have community college programs, similar programs will probably need to be established in one or two other non-metropolitan areas to provide adequate opportunities in all parts of the State.

A second State-supported medical school should not be established in the immediate future. Instead, Tennessee should concentrate on retaining more of the physicians it trains, since the State is one of the largest exporters of physicians in the nation. Retention can be improved by:

(a) Expanding training for senior medical students, residents, and interns in four clinical centers. The first opened in 1972 in Knoxville, two others are being established in Tri-Cities and Chattanooga.

(b) Training more family physicians who will be interested in practicing in team situations outside metropolitan areas.

(c) Making the small towns more attractive as practice locations. This is probably the most important aspect, and will require changes in the health care delivery system which are largely outside the influence of the higher education system. The cost of not following this recommendation is about $20-$40 million in State capital outlay, and about $2 million annually in operating funds.

A strong system of private colleges and universities should be maintained in Tennessee. The State has a large number of private institutions which currently enroll about 36,000 students, approximately half of whom are Tennesseans. The institutions are quite diverse, ranging from small rural junior colleges to a major university of international prominence with graduate and professional schools. In size, the colleges range from about 200 to more than 6,000 students. The existence of these private institutions—under various sponsorship and with different self-determined missions—alongside Tennessee's public colleges gives students a wider choice of the type of education they desire and the setting in which to pursue it.

The best ways of relating the private college to the total higher educational scene are still being developed. In Nashville and Memphis, where several public and private institutions are located in the same community, the present informal communications need to be strengthened, and more extensive cooperative efforts should be developed. In planning, the public institutions need to consider the existing programs in the private institutions, and avoid duplicating them. Likewise, the private institutions need to avoid development of programs which duplicate or unnecessarily compete with the public sector.

Many private institutions are in serious financial difficulty as operating costs have risen in recent years. They have been faced with rapidly-rising costs and slowly-rising gift and endowment income. As a result, they have had to increase tuition more frequently than public colleges. The increasing costs of attending private institutions, as compared with public colleges, has hurt private enrollment. This declining enrollment has made their financial situation even more difficult. If the tuition gap between public and private institutions becomes greater, the shift of enrollment to public colleges is expected to accelerate, thus increasing the financial burden on the State.

There is no immediate likelihood that many of Tennessee's private colleges will have to close. But it seems quite probable that some will be forced to do so in the next decade unless the high cost—low enrollment dilemma is alleviated. Tennessee must face the implications of the loss of its private institutions. Without them, the State would have to provide for the 19,000 Tennesseans they now enroll. This would require another institution nearly as large as Memphis State, or an equivalent expansion of the existing public institutions, either of which would mean more than $20 million a year in additional operating expenses.

The State can take several courses of action to avoid further weakening of its private colleges without providing direct general subsidies. The new Tuition Grant Program, which began in 1972, provides money for tuition and fees to needy Tennessee students whether they attend public or private colleges in the State. Many grant recipients are expected to choose to enter the private institutions. Expanded Federal programs of student assistance, plus Federal institutional grants, should also enable more students to afford private higher education, thereby helping to solve some financial problems of the private sector. Private institutions may also be able to serve specialized needs for educational programs, such as graduate-level nursing education, for example, through contracts for service. In all arrangements where public funds are utilized by private institutions, they should be accountable for their use just as the public institutions are required to do. In many cases, these alternatives may be less expensive than development of additional programs in public institutions. Direct involvement of private institutions in planning for the future of higher education in Tennessee should also help to make their role more effective in serving the needs of the citizens.

Involvement in public service and research must be encouraged and strengthened. The faculties and facilities of Tennessee's higher education institutions have more to contribute to the State than just the instruction of students. They already are being utilized in many types of public service, including research to help in the solution of problems of governmental agencies, business and industry; special courses to develop particular skills for public and industrial employees; the enrichment of cultural and recreational programs in their communities, and scientific research toward the solution of medical, environmental, and social problems. These services are supported by funds from the clientele who are served as well as from State appropriations. The larger and more comprehensive institutions are organized to provide research and public service through various bureaus, while smaller institutions respond to the service needs of their communities in less formal ways. Faculty and administrative personnel should see research and public service as important responsibilities and as a means of maintaining a close tie with all segments of the State. In the future, more effective arrangements for support of such activities will be needed if the institutions are to make their maximum contribution to the State's economic and social development. The Commission is recommending additional State funding in this area.

There is, however, a need to define "public service"

Art is one of the various program offerings at Walters State Community College located in Morristown.

Higher education in Tennessee attracts adults (above) as well as the youth (right photo) of the State.

in greater detail and to establish a scope of "public service" activities that the State anticipates will be undertaken by its public colleges and universities. A definition and delimitation of the public service function is essential if the State colleges and universities are to avoid duplication and competition with other governmental or private organizations routinely engaged in providing service to the public.

How to harness the multiple talents of the academic community without expensive duplication or competition is a problem for higher education planners in the years ahead as public service is expanded. The Commission will work with the institutions to develop a realistic definition and range of activities to be undertaken in the area of public service.

Expansion of public service programs should not be at the expense of instructional programs. In short, the Commission is encouraging the institutions to establish priorities that give greater weight to public service without diminishing the effectiveness of established instructional programs.

Off-campus programs for adults should be strengthened, but duplication of effort should be eliminated. The State's public institutions operate numerous off-campus programs. Some are non-credit courses designed to provide continuing education for adults who are not working toward degrees. Most courses, however, are offered for extension or resident credit which may be applied toward degrees. It is anticipated that "extension" and "resident" credit distinctions will disappear as related to the quality of offerings and their acceptability, and in the financing of off-campus instruction.

There are instances in which two institutions offer overlapping or duplicative work in the same community, sometimes in a city which is the location of another institution offering the same courses. These practices often result in unnecessary competition and expense. Off-campus instructional needs will inevitably increase, and the goal in establishing statewide policies for off-campus credit courses should be to facilitate institutional response to such community needs. Policies and procedures should be designed to produce an orderly system for determining which institution should respond to needs in particular instructional areas in certain parts of the State, so as to avoid confusion among institutions and among students and community leaders who seek course offerings.

The State Board of Education and the Higher Education Commission adopted the following common policy to coordinate off-campus programs. The UT Board of Trustees adopted it with some modification. There is a need for further refinement toward the development of policies and operational procedures which are more effective.

OFF-CAMPUS CENTERS

1. An off-campus instructional unit is to be considered a center if it involves a significant continuing commitment of institutional resources in terms of faculty, facilities and equipment.

2. The role, scope and purpose of each existing center should be defined clearly and forwarded by its governing board to the Higher Education Commission.

3. Each existing center should offer only those programs or courses which are consistent with its stated role. Offerings beyond that role should be approved by the Commission.

4. New centers should not be located within 30 miles of public institutions whose offerings overlap, in level and discipline, those of the proposed center.

5. A proposal for the establishment of a new center should be forwarded by the appropriate governing board to the Higher Education Commission for approval. That approval should be based upon:

   (a) Community need and demand.

   (b) Ability of the institution to meet the community needs in terms of faculty, facilities and financial support.

OFF-CAMPUS COURSES AND PROGRAMS

1. As a rule, courses should be presented by the closest public institution having offerings at the level and in the discipline needed by the community.

2. When an institution is considering off-campus courses within approximately 30 miles of the home campus of a public institution with overlapping offerings, the nearby institution should be informed 30 days prior to registration. If, after consultation, the closer institution does not wish to provide the service, registration will proceed.

3. Exceptions to these policies may be necessary from time to time in order to utilize most fully the capacities of the institutions to meet instructional needs across the State:

   (a) The establishing of innovative or experimental programs.

   (b) The enabling of several institutions to cooperate in offering a program of higher quality than would be possible otherwise.

   (c) The services of more than one institution being required.

   When an institution is to initiate courses under such exceptional conditions, it should inform the Higher Education Commission.

4. Should there be uncertainty as to which institution should respond to a community's need for off campus instruction, that issue should be referred to the Commission for recommendation.

The classic columns of Old Main at Middle Tennessee State University provide a backdrop for many studies.

ROLE AND SCOPE OF PUBLIC INSTITUTIONS

AUSTIN PEAY STATE UNIVERSITY

Austin Peay State University was established as a normal school in 1927, and it began conferring bachelor's degrees in 1942. Its emphasis is still clearly in the field of teacher education, although undergraduate programs are offered in the major arts and sciences areas, and professional preparation is available in business, agriculture, and home economics.

Graduate work at APSU consists of master's programs in English, history, psychology biology, education, and public education. The University operates associate degree nursing program that in nursing. Few resources are devoted to research. The University has an active program of off-campus offerings to serve military personnel at nearby Ft. Campbell, as well as some in education elsewhere. Since APSU's service is principally to students in the immediately adjacent counties, it is and will continue to be a regional university.

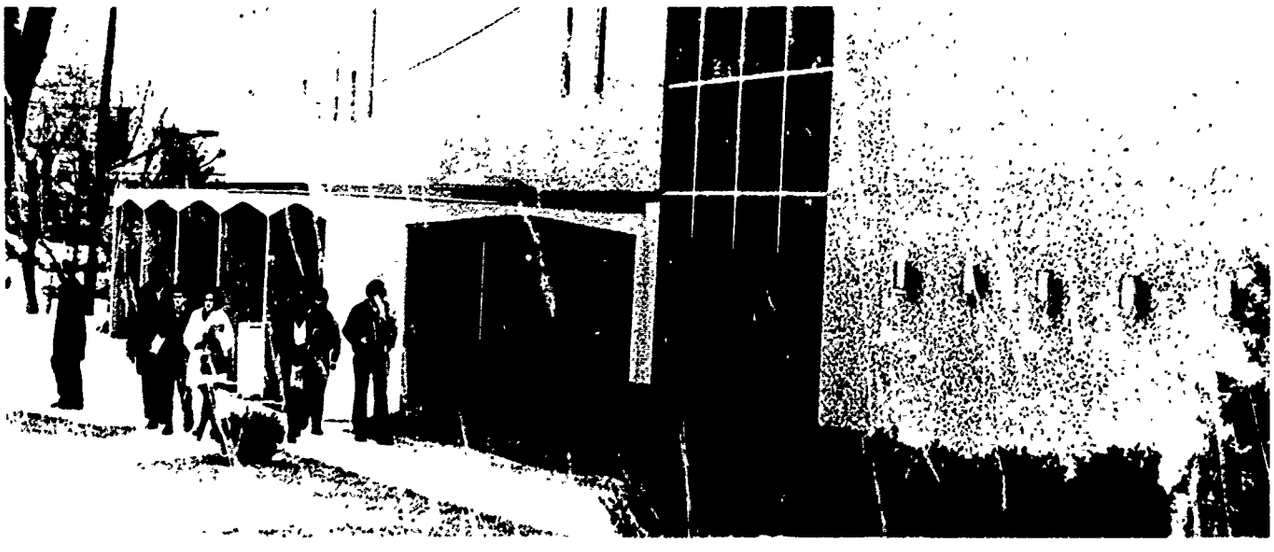
The University's plans for the next decade should center around a broadening and an enrichment of its teacher education programs, and the strengthening of several areas in the arts and sciences. It should consider establishing separate undergraduate majors in health, physical education, and recreation, as well as a concentration in methods of teaching reading for students working towards the master's degree in education. APSU should also study the need for more training opportunities in special education for the region it serves. Since the University has a number of public school personnel enrolled for work beyond the master's degree level, it should work closely with other Middle Tennessee institutions to define its role in providing Educational Specialist degree programs which are not unnecessarily duplicative.

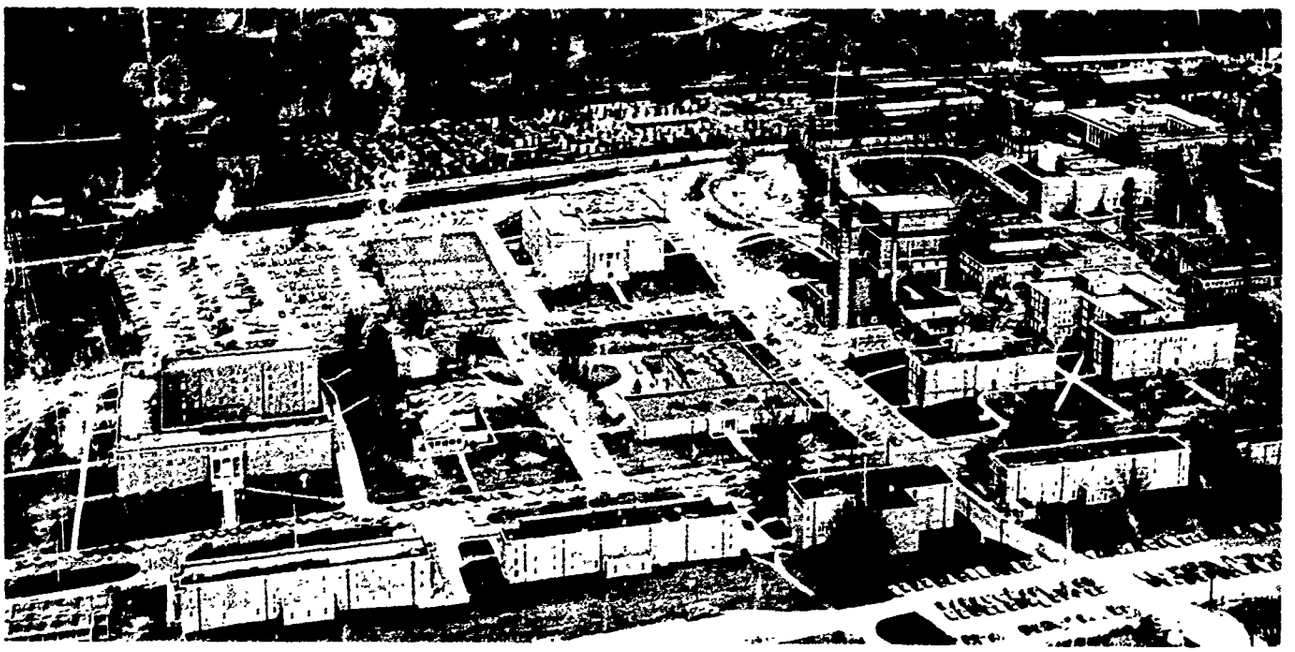
The University has considered the need for a Master of Business Administration degree to serve, particularly, the demands of off-campus students. As indicated in a following section on business, there is insufficient need for another MBA programs now. Instead APSU should concentrate on bringing its undergraduate business program to a level which would permit its accreditation

The institution is projecting new baccalaureate programs in social welfare for the next year or two, and in fine arts for the latter half of the 1970's. Both areas are well selected for development. The agriculture program, with low enrollment and limited facilities, should be phased out gradually with tenured faculty being utilized in a two-year program for students who will transfer elsewhere for the baccalaureate degree.

A sizeable segment of APSU's service area is without access to a community college within commuting distance. As a result, the two-year, career-oriented programs provided by community colleges are not available to students. The University has done some planning toward offering several two-year occupational programs, in addition to its nursing program, for those who need or prefer them. As discussed in the community college section, this is one solution to the needs of those not served by community colleges, and it should be explored fully. In general, Austin Peay should remain primarily an undergraduate institution. Emphasis on high quality instruction and the advantages of a small campus environment.

The Student Center at Austin Peay State University is a popular place for those attending the institution.





East Tennessee State University is one of six regional universities governed by the new Board of Regents.

EAST TENNESSEE STATE UNIVERSITY

East Tennessee State became a university in 1963, after having begun as one of the State's regional normal schools. Its students come mostly from upper East Tennessee, and the University identifies strongly with the people and the needs of that region. ETSU offers bachelor's degrees in most of the traditional academic fields, and master's degrees in a number, the principal exceptions being in some liberal arts areas. Professional preparation is offered in education, business, nursing, social services, and allied health professions. Associate degrees are offered in nursing, law enforcement, and dental hygiene.

The University's emphasis on teacher education resulted in a doctoral program in education which started in 1971. This should be ETSU's only doctoral-level work during at least the next five years.

Research programs are more limited at East Tennessee than at the comprehensive universities, although several academic departments are engaged in contracted or university-sponsored research programs. There is an active continuing education service to the region, with courses being offered on campus and off-campus in several residence centers.

East Tennessee State should continue to devote its major effort to meeting the needs of undergraduate students through development of new baccalaureate programs for which there is a need in the Appalachia area. These may include the earth sciences and other environmentally-related areas, in education of vocational teachers, and in recreation. At the same time, there should be a phasing out or consolidation of programs with low enrollment and output, and an upgrading of programs, such as business, to achieve accreditation status.

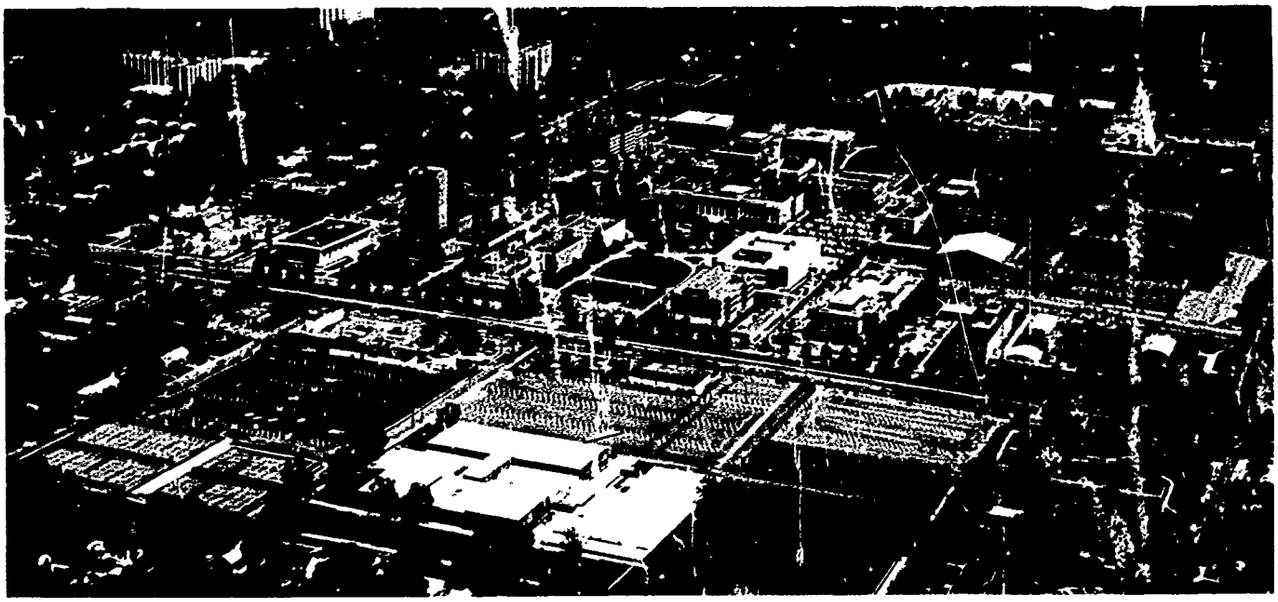
Additional master's degree programs should be developed only in those fields where needs can be clearly demonstrated and sufficient student interest can be projected. Institutional interest has been expressed in social work, medical technology, accounting, and the music fields. The existing graduate programs in education are extensive enough to provide, easily, Educational Specialist degree majors in administration and supervision, and in curriculum and instruction, a need for which exists in that section. If an additional doctoral program is developed during the next decade, it should be in another field of professional education, for which a clear need can be demonstrated.

MEMPHIS STATE UNIVERSITY

Memphis State University has been developing into the second public comprehensive university in the State during the past seven or eight years. It originated as a normal school and grew through baccalaureate and master's programs—and rapid enrollment increases—to the establishment of its first professional school (Law) in 1962, and to its first doctoral program in 1966. The decision to establish MSU as the second comprehensive institution resulted because of its size, the qualifications of its faculty, its distance from UT Knoxville, and its location in Tennessee's largest city.

The University offers a full range of undergraduate programs and master's degree programs in most arts and sciences areas, and in several professional fields. It offers doctoral programs in education and in four arts and sciences areas. An associate degree program, in nursing, is offered, but it should probably be transferred to Shelby State Community College in the future.

Memphis State offers professional degree programs in education, engineering, business, nursing and law.



Memphis State University has the second largest enrollment of all of the State's 20 public institutions.

Its involvement in research is moderate in comparison to UT Knoxville, but research activities are being developed in most graduate departments and through research bureaus in business and education. These should be expanded as necessary aspects of the University's graduate programs.

MSU provides a variety of community services, mostly in the Memphis area. These include non-credit courses of interest to the public, various institutes and short courses. Some non-credit offerings might best be handled by Shelby State's continuing education program, with Memphis State concentrating on continuing education for professional-level personnel.

As an institution in a major urban area, Memphis State should emphasize--in its curriculum and in its services--the growing problems of urban living, just as land grant universities have contributed to the development of agriculture and rural life. This will require a substantial effort by the University in support of expanded roles for its several service bureaus, and increased involvement with government and industry.

Undergraduate program development for the next several years should be limited to restructuring of existing offerings into some new functional interdisciplinary degrees, such as mass communications. New master's degrees should be developed in the fine arts and in such interdisciplinary areas as environmental and urban studies. Once Shelby State is well established, consideration should be given to transferring MSU's two-year nursing program to that institution. If that occurs, and if there is need for additional bachelor's degree nurses, MSU's faculty and facilities in nursing could be directed into a four-year program. The proximity of the two institutions should enable them to arrange nursing programs so that a two-year graduate could enter the bachelor's program without loss of time and credit.

The most careful decisions about new programs to be made at MSU relate to doctoral work. On one hand, there is growing State and national concern about an oversupply of the Ph.D.'s in many fields. On the other hand, the University will need to develop a balanced curriculum of advanced graduate studies if it is to be truly comprehensive. In terms of institutional readiness and faculty strength, Memphis State could prepare rather easily for doctoral work in English, sociology, and economics. However, implementation of these programs should be delayed pending evidence of a demand for graduates which is not likely to be met by other programs in Tennessee.

Also, the University must consider whether its resources are to be channeled into these and other discipline-defined doctoral programs, or into functionally-defined interdisciplinary professional programs to prepare researchers and scholars to work toward solving today's problems in such fields as urban living and environmental control.

MIDDLE TENNESSEE STATE UNIVERSITY

Middle Tennessee State University was established as a normal school to serve the Middle Tennessee region. In recent years, it has developed more comprehensive regional responsibility with an increasing urban orientation. The Nashville metropolitan area has expanded to the point that many of its residents are as near to Murfreesboro as they are to the two public universities in Davidson County. Thus, MTSU's role must be related to those of UT Nashville and Tennessee State University, and its program development should be complementary to these two institutions.

The University offers a rather complete range of general undergraduate degrees and professional programs in business, education, agriculture and home economics. Master's degrees are offered in approximately 20 areas, with greater concentration in education

tion, business, and the social sciences. There is a joint master's degree program with UT Nashville in public administration. Graduate enrollment at Middle Tennessee is the third largest among the State's public universities. In 1970, MTSU entered doctoral-level work with Tennessee's first Doctor of Arts program. This new degree is designed primarily for the preparation of college teachers, as differentiated from Ph.D. and Ed.D. degrees which emphasize research and preparation for positions in public education. The D.A. at Middle Tennessee is offered in three fields: English, history, and health and physical education. The University also maintains two programs at the associate degree level: nursing and law enforcement.

In the past several years, MTSU has begun emphasizing the fields of aviation and aerospace, with an undergraduate program to prepare persons for work in the aviation industry, and a master's program to prepare teachers for aerospace instruction in public schools.

MTSU's research and service activities are less extensive than those in the two comprehensive universities, although several of the academic departments are involved. The Bureau of Business and Economic Research extends service to the business and industrial community. Most of the University's off-campus extension services are in education.

New program development at Middle Tennessee has been extensive during the past several years as enrollment grew rapidly. Now that enrollment growth will be slower, it will be necessary to develop new programs judiciously while evaluating existing ones for revision so that enrollment in all programs is adequate for efficient operation.

Baccalaureate degree programs being considered, and for which there appears to be a need, include special education, criminal justice, environmental technology, systems analysis, and distributive education. Additional master's degree programs should be built on a solid undergraduate base, and be related to clearly established needs in the University's geographical area. Some Educational Specialist degree programs are needed in Middle Tennessee, and MTSU is capable of such offerings. In their development, however, there must be careful coordination with the other institutions in that part of the State.

The Doctor of Arts program initiated at MTSU in 1970 is a relatively new kind of advanced study. Some expect that recipients of the D.A. will be more in demand to fill college teaching posts than will the traditional Ph.D. The success of D.A.'s in college teaching, as well as the apparent oversupply of Ph.D.'s in most fields, must be considered carefully before there is any expansion of Middle Tennessee's D.A. program into additional fields. Other doctoral programs under consideration for possible initiation in the late 70's include the Doctor of Business Administration and the Doctor of Education. As stated in the sections of this plan devoted to these fields, present indications are that such programs are not likely to be needed. Planning in these directions, therefore, should not begin until a need can be clearly identified for additional graduates.

MTSU's aspirations to provide more extensive educational programs for the central section of the State are commendable. It will be necessary, however, to plan new programs in a very selective and deliberate manner in view of the changing enrollment, demand, and financial situation in higher education.

Middle Tennessee State University in Murfreesboro has had a steady growth in facilities and enrollment.

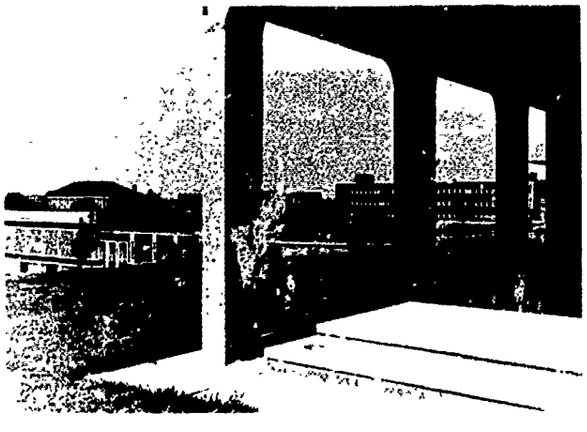
TENNESSEE STATE UNIVERSITY

Tennessee State University was established 60 years ago as a normal school and a land grant institution for blacks. Its original mission included not only teacher training, but also agriculture, home economics, trades and business. The University now has baccalaureate degree programs in most of the usual academic areas and in such special areas as social welfare and corrections. There are several master's level programs in education. Master's degrees are also offered in agriculture, fine arts, and in some areas of the arts and sciences. Two-year programs are offered in nursing and in business technologies. Thus, TSU has evolved into an academic and professional institution of broad scope, with an important role to play in the Nashville area, as well as having statewide responsibilities as a land grant university and in terms of its sources of students.

The integration of Tennessee institutions and the reduction in number of out-of-state students have resulted in reducing Tennessee State's enrollment. Rebuilding the enrollment is a major factor in academic planning. Prior to 1956, all blacks who went to State public colleges attended Tennessee State. Less than 40 per cent of the black enrollment at public institutions in the fall of 1972 was at TSU. This trend is likely to continue so that by 1980 it is likely that TSU's share will be less than one-fourth of black Tennessee students. If the University is to prosper, it must attract more white students. The most likely source of such students is the commuter group from the Nashville area. Unless Tennessee State can draw additional commuting students or can recruit Tennessee whites by other means, enrollment is not likely to increase significantly.

If TSU and UT Nashville were merged into a single institution with some programs offered on each campus, a more racially-integrated and larger student body would probably result. There are two approaches to increasing white enrollment at TSU if a merger is not feasible. One is to assign Tennessee State certain unique programs which will have metropolitan area-wide attraction. Such possibilities are described below. The other approach is the further development of cooperative programs between TSU and other Nashville-area institutions. Cooperative programs can increase faculty interaction, promote integration, and lead to more economical use of resources. Even without the necessity for further integration at Tennessee State, the requirements for more economical operation of higher education will require greater cooperation between schools near each other.

Tennessee State University (lower left) in Nashville was established as a land-grant institution for blacks.



The choice of programs to be offered at Tennessee State will be a crucial decision if the institution is to attract white students and, simultaneously, continue its attraction for blacks. Programs need to be developed which will attract a broader range of students. Such areas of concentration would include those which are increasingly popular as majors, and those not available at UT Nashville. Among these are the allied health professions, applied social sciences, and the communicative and performing arts. Tennessee State University should initiate an inter-departmental undergraduate major in urban studies, both social and environmental, and work toward master's level study in that area as institutional capability and student interest warrant. It should also make a close affiliation with the UT School of Social Work, now located on its campus, to strengthen and enlarge the existing TSU undergraduate social work major. This arrangement should involve close articulation between the TSU bachelor's program and the UT master's program. Tennessee State's existing program in corrections should be broadened in scope, but carefully coordinated with the developing criminal justice program at MTSU to achieve comprehensive offerings in this field

in the Nashville area, and to avoid undesirable duplication and competition

Through a relationship already established with nearby Meharry Medical College, TSU is in a position to expand offerings in the allied health field at the undergraduate level There is a shortage of personnel in many of the health areas in Tennessee and throughout the nation. and these programs should be attractive to vocationally-oriented students of all races.

If TSU and UT Nashville remain separate institutions and Tennessee State is to be more fully integrated, programs of significant scope, such as professional education, will need to be assigned exclusively to Tennessee State. There must be an effective definition of a unique and non-competitive role for TSU so that it can attract more white students.

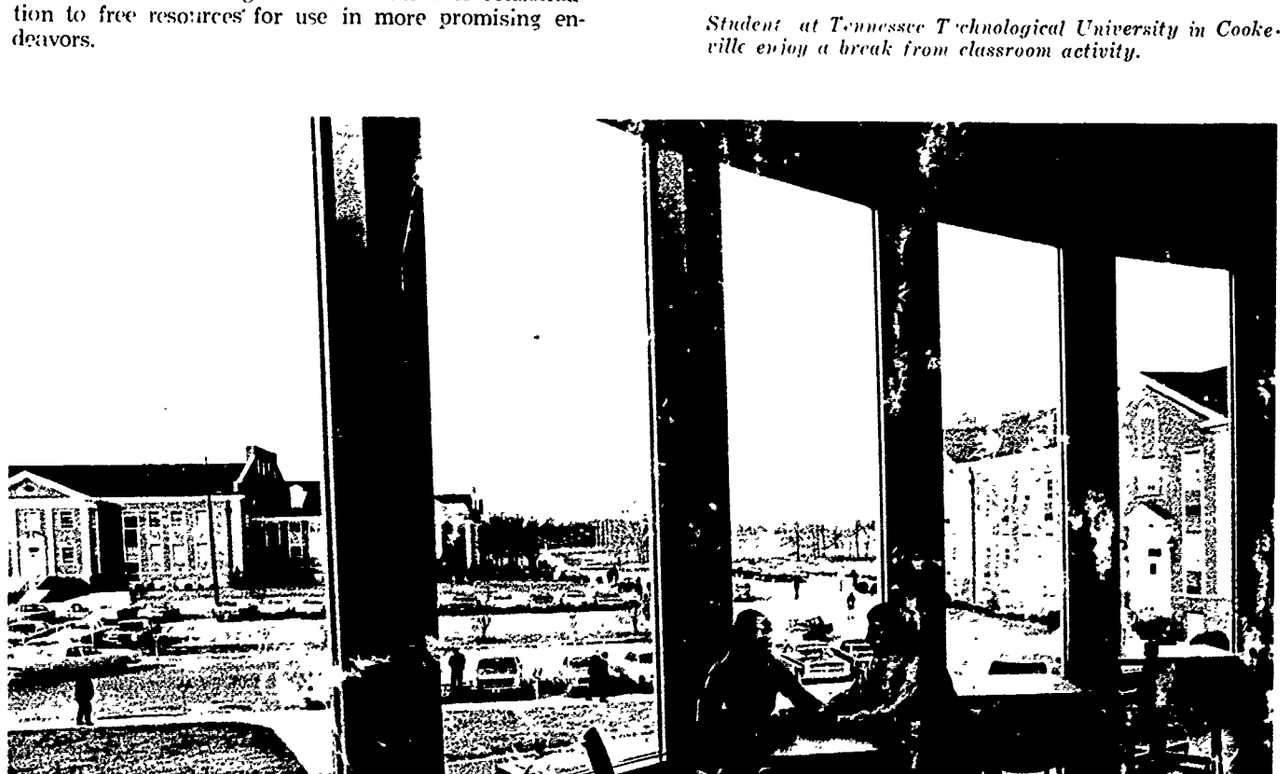
It will be necessary for TSU to focus its energies on strengthening existing programs, and make a careful choice, and invest sufficient resources in the development of new offerings such as those described above. This will mean limiting graduate work to the master's level in a few carefully-selected areas, with the possible exception of participation in a cooperative or Joint Educational Specialist degree program. It will need to limit its business and agriculture programs to the undergraduate level and improve their quality. Several marginal undergraduate programs need to be critically examined toward the goal of elimination or consolidation to free resources for use in more promising endeavors.

TENNESSEE TECHNOLOGICAL UNIVERSITY

Tennessee Technological University has evolved from a different origin than that of other State schools. When created in 1915, it was assigned the dual role of a normal school and a school of technology. This mission has been reflected in the institution's development. Although it offers undergraduate degrees in practically all of the major academic fields and professional programs in business, home economics and agriculture, about 60 per cent of its enrollment is in engineering, the sciences, and education. It is apparent that the University's resources have been directed toward an emphasis in those fields, particularly engineering There are master's degree programs in several fields, but the only programs above the master's level are an Educational Specialist degree and a Ph.D. in engineering. Tennessee Tech serves, principally, students from the Cumberland areas of Middle Tennessee, although some departments engineering primarily—draw from a much wider area.

TTU's research and service activities are less extensive than those in the more comprehensive universities, although several of the academic departments are involved in such activities. The College of Engineering is particularly active in research, having been able to attract growing contract support for several years. The College of Education is TTU's most active unit in public service, with an off-campus program in the University's centers at Crossville and McMinnville.

Students at Tennessee Technological University in Cookeville enjoy a break from classroom activity.



The University should continue to concentrate its resources in engineering, the related sciences and education. In the engineering field, it serves more than a regional need with the only publicly-supported graduate programs between Memphis and Knoxville. Other fields, however, should be developed so that students within the region it serves have a full range of opportunities for undergraduate study. For example, there needs to be a strengthening of the total fine arts area, not only to provide more opportunities for those with special interests but also because of its importance as a component in a university's liberal arts program. Consideration should also be given to the development of majors in psychology, early childhood education, and special education. Furthermore, the strong engineering program should be utilized in developing some interdisciplinary work in environmental problems. Within its existing sociology major, the University can offer courses to prepare bachelor's graduates for positions in social work. TTU is properly considering an undergraduate program in rural development and planning if the need exists. The programs cited are some of the more apparent examples of ways in which Tennessee Tech's undergraduate program might be broadened and are not meant to be exclusive of other similar curricular developments which geographic area needs and student interest may justify.

The UT Space Institute near Tullahoma offers advanced studies in aerospace science and engineering.

A major part of the Upper Cumberland area has no access to the two year community college career programs available in other parts of the State. One method of meeting this need would be to develop some programs at Tennessee Tech. The University is interested in providing such a service and it should continue to be studied as a possibility.

At the graduate level, an appropriate goal would be to extend the undergraduate industrial engineering program to a master's degree as employment opportunities justify it. After some further strengthening of the undergraduate sociology program, master's level work in this field would be feasible. Although the University has worked toward a Master of Business Administration program, there is no apparent need for an additional M.B.A. program in the State at present. A need for additional doctoral programs is not seen at this time. The University could implement, with some additional investment, doctoral work in the engineering related sciences and mathematics, but at present the market for graduates in these areas is oversupplied, and no additional programs are needed. Tennessee Tech's energies should be directed toward maintaining high quality programs in the fields of its original mission, and sound undergraduate programs in the other general fields.

UNIVERSITY OF TENNESSEE

Tennessee's oldest public institution of higher education is the University of Tennessee. It was created in 1794 as Blount College, became East Tennessee College in 1807, East Tennessee University in 1840, Tennessee's first Federal land grant institution in 1869, and then was designated by the General Assembly as Tennessee's State university—and given its present name—in 1879. In 1968 it was officially organized as a statewide university system.

The UT System consists of a central organization plus five primary campuses at Chattanooga, Knoxville, Martin, Memphis and Nashville. Governed by the UT Board of Trustees, the System is under the administration of a president. All vice presidents and other officials of the system organization, as well as the chancellors, report to the president.

UT's central organization fills a dual coordination-service role. Each vice president has functional relationships with the chancellors. Such relationships involve not only centralized services to the primary campuses in academic planning, business management, physical plant development, solicitation of financial support and other promotional efforts, but also the coordination of the University's statewide programs in the broad areas of agriculture, urban and public services, and continuing education.

Through interlocking operations and close cooperation among the central organization and its primary campuses, all facets of the institution are bound into the unified identity of the University of Tennessee.

UNIVERSITY OF TENNESSEE AT CHATTANOOGA

University of Tennessee at Chattanooga is built on a base of the former University of Chattanooga which became a State institution in 1969, having already developed as a liberal arts institution with programs at the baccalaureate and master's levels. Its present role and future are influenced heavily by its status at the time it was merged with the UT System and by its location within Chattanooga. Few of its students live on campus, since most are from Chattanooga or surrounding counties.

UT Chattanooga offers bachelor's degrees in the arts and sciences, fine arts, education, business, and engineering. A bachelor's degree program in nursing has been approved, but not yet initiated. The strong liberal arts orientation of its past is reflected in the existence of such majors as classical civilization, philosophy and religion, and by a heavy emphasis on fine arts. Master's degrees are offered in education, business, and the physical sciences. The University's investment in research and public service are not as great as in the comprehensive universities. It is developing, however, more active programs in continuing education and non-credit instruction for the community.

Faculty and administration at UTC are shaping its academic programs in two directions. One is toward functional, interdisciplinary majors identified with the problems of urban life. The other is toward experimental and innovative modes of instruction which give the undergraduate student more responsibility in the determination and execution of his course of study.

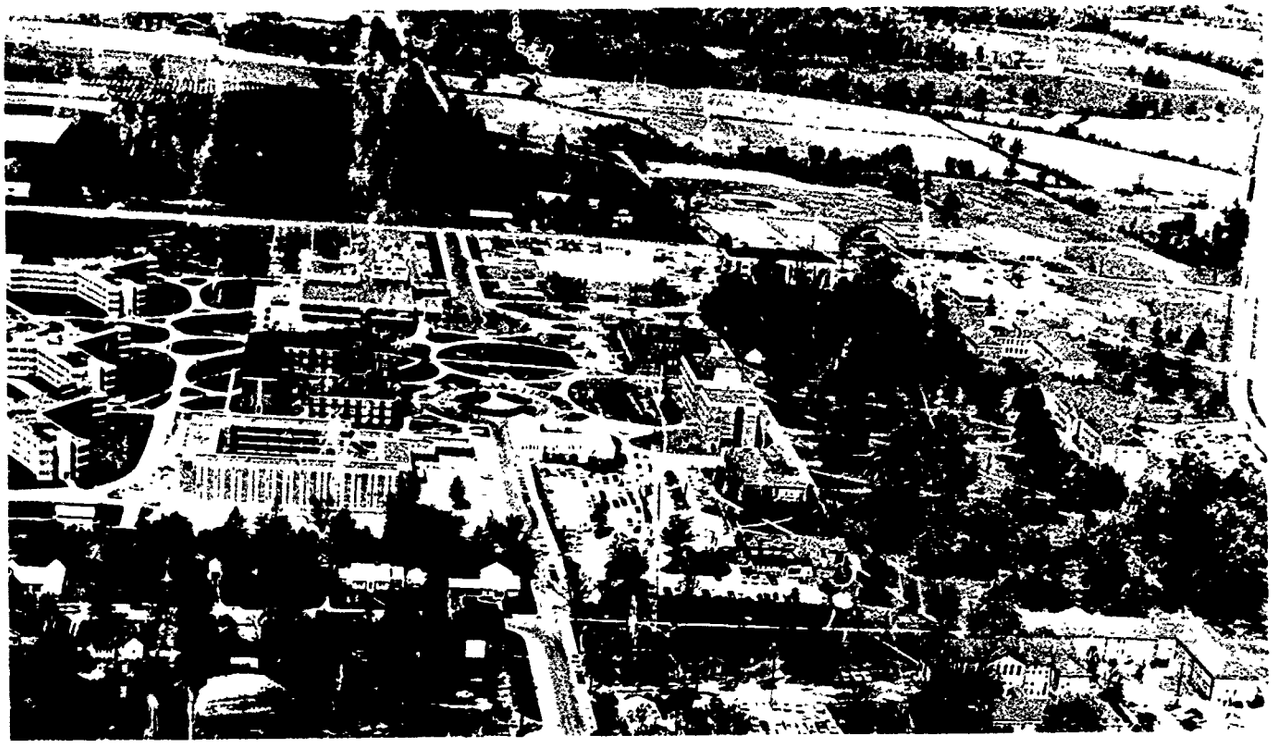
UT Chattanooga should be characterized as a university which emphasizes undergraduate instruction and provides preparation of professional personnel needed in Chattanooga and other urban areas. The next decade should see some restructuring and strengthening of existing programs and the development of additional bachelor's programs in areas where there is increased demand for graduates, but only limited growth at the master's level.

It should continue to experiment with new approaches to undergraduate study. The initiation of a baccalaureate program in nursing should have highest priority and the University should investigate cooperative ventures with Chattanooga hospitals in the training of other health personnel as demands in these areas occur. Interdisciplinary baccalaureate programs should be developed in environmental studies and in early childhood education. In education, UTC should develop baccalaureate programs in special education, utilizing the several Chattanooga agencies—serving exceptional children—as training laboratories. The presently offered bachelor's program in home economics should be phased out with the initiation of an interdepartmental early childhood program.

At the graduate level the University should initiate a master's degree in biology soon and in the humanities later. High priority should be given to upgrading the existing Master of Business Administration program to the point that it qualifies for accreditation.

UT Chattanooga's programs designed for disadvantaged students should be continued until a community college program is established in the city. Then, most programs of this type should be transferred to the community college sector so that students may have more options for career education or for transfer to a senior institution. However, continuation of some remedial education programs at UTC may be desirable even after community college programs are initiated in the Chattanooga area.

UT Chattanooga, formerly University of Chattanooga, joined the University of Tennessee system in 1969.



University of Tennessee at Martin was a junior college of University of Tennessee when it was created in 1927.

UNIVERSITY OF TENNESSEE AT MARTIN

University of Tennessee at Martin was created as a junior college of University of Tennessee in 1927, principally to provide for students who desired two years of preparation before transferring to Knoxville for majors in agriculture, home economics, and education. Its first bachelor's degrees were authorized in 1951, and it now offers such degrees in a number of areas of agriculture, business, education, engineering technology, home economics, and liberal arts. A two-year program in nursing has recently been started. The University's first master's program, in education, was initiated in 1967, and a master's program in home economics was introduced in 1971. There is relatively little investment in research, as should be expected in an undergraduate institution. The University is now developing a more active program of off-campus instruction in its service area.

UT Martin's primary role will continue to be that of undergraduate instruction, along with the provision of a limited number of master's level programs particularly needed in Northwest Tennessee. The University draws a large part of its enrollment from West Tennessee, but it is also attractive for students from Memphis and Nashville who seek a smaller residential four-year institution. Administration and faculty are strongly committed to focusing the University's resources toward high-quality, undergraduate education. The faculty is recruited, and facilities developed, with this goal clearly in mind.

The next decade should see UT Martin's present departmental structure organized into several colleges or schools. Additional programs which are developed must be justified, primarily, by regional needs, and they should be consistent with the University's commitment to undergraduate education. Undergraduate majors which should be considered for development are environmental sciences, communications, art, special education, early childhood education, rural sociology, and American studies. Other programs envisioned by the University, but which now appear less likely, are undergraduate majors in finance, marketing, library service, structural technology, and some allied health areas. Although preliminary accreditation review of the School of Business by the American Association of Collegiate Schools of Business suggested a need for a baccalaureate program in finance—emphasizing banking and insurance—this need will require more complete substantiation before such an offering is planned.

The University has expressed some interest in providing community college-type educational programs and services for that portion of its area not presently served by a community college. As discussed in the community college chapter, this might be an alternative to the establishment of another institution in that part of the State, if there is a strong commitment to the concept on the part of administration and faculty and a judicious development of such programs.

UNIVERSITY OF TENNESSEE MEDICAL UNITS

The Medical Units campus of University of Tennessee in Memphis occupies a unique and highly-specialized role. It is devoted entirely to education in the health fields. Programs are offered at all levels, from certificates requiring less than two years of study to doctoral degrees. There are undergraduate programs in several fields, including nursing, physical

therapy, and pharmacy; master's degree programs in the basic medical sciences; and doctoral programs in dentistry, pharmacy, medicine and basic sciences. In addition, master's degrees are awarded for several kinds of specialized study in clinical fields after the professional degree has been earned. The Medical Units also have statewide responsibility for continuing education of those working in the health professions.

Faculty of the School of Medicine staff the City of Memphis hospitals which serve as a clinical training center for medical students. Faculty members also have responsibility for the training and supervision of interns and residents in many medical specialities.

Enrollment in most schools at the Medical Units is composed mainly of Tennessee students. An exception is the Dental School which accepts a considerable number of Arkansas and Mississippi students through contract with the Southern Regional Education Board, whereby these two states pay the University of Tennessee for dental education services.

In the next decade the Medical Units will have need to increase enrollment in some fields and initiate new programs in others. In response to a critical demand for master's degree-level nurses as faculty members of Tennessee's nursing education programs, such a program is expected to begin admitting students in 1973. Enrollment in the baccalaureate program in nursing needs to be increased to achieve greater efficiency of operation. The Medical Units, through the new School of Allied Health, should expand programs for the training of persons in various allied health fields, some at the associate degree level and others at the bachelor's level or higher. This should be approached through close cooperation with Shelby State Community College, Memphis State University, and other institutions, with the Medical Units providing the specialized parts of the curricula and the academic institutions the general education and basic sciences. This division of responsibilities wherever possible should permit efficient use of faculty strength and mutual support. Enrollment in the School of Medicine will need to be expanded to approximately 40 additional entering students per year. The first Clinical Education Center of the Medical School opened in Knoxville in 1972, accepting 20 senior students for their final clinical training. UT has been directed by the General Assembly to plan the establishment of similar centers in the Tri-Cities area and in Chattanooga as soon as possible; and they should also consider the establishment of a fourth clinical center in Jackson at an appropriate time.

The need for additional dentists in Tennessee is serious. More Tennessee residents have enrolled in the Dental School, and it is being expanded to accommodate about 25 additional entering students each year. The problem in dentistry is similar to the problem in medicine. The State has trained far more dentists than have been licensed here, and the supply of dentists has increased very slowly. Tennessee could have a supply of dentists equal to the national average within five years if it could retain just two-thirds the graduates for practice in the State. Until problems of retention are solved, the expansion of training in dentistry, beyond the 20 per cent planned, is not likely to do much to alleviate the shortage.

Finally, the Medical Units should take the lead in developing training for new types of health personnel. It is clear that the State will need some type of physician's assistants and expanded-function dental auxiliary personnel. Medical Units personnel should place a high priority on the design of curricula for such health workers.

The University of Tennessee Medical Units in Memphis are located at the right center of this photograph.

UNIVERSITY OF TENNESSEE AT NASHVILLE

University of Tennessee at Nashville has a history and role quite distinct from those of any of the State's other four-year institutions. In 1947, University of Tennessee began a center for extension courses in downtown Nashville. Courses were offered for resident credit beginning in 1960, and the institution became a degree-granting campus in 1971. Before campus status was achieved, students were able to satisfy, in Nashville, all requirements for several degrees offered on the Knoxville campus, with UT Knoxville conferring the degree. Now that UT Nashville has its own degree programs, students may still complete requirements at Nashville for several Knoxville master's degrees in education and engineering.

The primary role of UT Nashville is to provide instructional programs for working adults. Many non-credit courses are offered for the improvement of the individual in his career in government, business, and industry. This responsibility constitutes a large part of UT Nashville's activities, particularly in daytime hours.

The University offers a limited number of degree programs, some independently and some as joint efforts with Tennessee State University and Middle Tennessee State University. Courses are scheduled to accommodate the working student who attends school part-time. Most of the UT Nashville degree students fall in this category. The only daytime program for full-time students is a two-year associate degree program in nursing. The University of Tennessee School of Social Work has been located in Nashville for many years, and is moving its programs from UT Nashville to the Tennessee State campus, although management of the program will continue to be a UT Knoxville responsibility.

Bachelor's degree programs operated in the evening are in liberal arts, business administration, education, and general engineering. The engineering program is offered jointly with TSU, with some courses being available only at one campus. UT Nashville offers one master's program, a Master of Business Administration. There are three others on the Nashville campus, and all lead to UT Knoxville degrees. These include Master of Public Administration offered jointly by UT Knoxville and MTSU; in education; and in engineering administration, civil engineering, and industrial engineering. All except the engineering programs are taught by faculty based at the Nashville campus and they are, for practical purposes, UT Nashville programs although they have not been approved as such by the UT Trustees or Higher Education Commission.

In planning the future of UT Nashville, it is clear that its strong public service role must be maintained. It should continue to provide institutes, workshops, and non-credit courses for working adults. But it is in the area of academic programs that the more difficult decisions concerning the role of UT Nashville must be made. The presence of another State university in Nashville and two others within 40 miles demand close cooperation in academic planning. Thus, the following guidelines should be observed:

1. Nashville area residents who desire to work on degrees in the evening must be accommodated.

The lobby of University of Tennessee at Nashville offers a pleasant atmosphere for relaxation or study.

2. Cooperative arrangements must be worked out among local institutions so that faculty and facilities can be used efficiently to provide the highest quality programs.

3. Any duplication of programs, particularly between UT Nashville and TSU, must be justified clearly by a need which cannot be met by one school alone.

The UT Nashville-TSU engineering program and the UT Knoxville-MTSU public administration program are indications that joint efforts are possible. They should serve as rough models on which to build future cooperative academic offerings. One immediate possibility would be for UT Nashville and TSU to jointly develop an interdisciplinary undergraduate major in urban studies.

No independent graduate programs in education should be established at UT Nashville. Tennessee State, Middle Tennessee State, and Austin Peay already have heavy investments in professional education and offer graduate degrees. If UT Nashville strengths can be used jointly with any of these institutions to offer a better program, this should be encouraged with particular attention to special areas in which graduate training in Middle Tennessee needs expansion. Among

these are special education, early childhood education, and Educational Specialist programs.

The UT Knoxville degree programs offered wholly on the Nashville campus should be evaluated by the UT Trustees and Higher Education Commission for possible approval as UT Nashville programs. Although it may be that some programs, such as graduate work in engineering which is offered through remote teaching techniques, should continue to be offered by UT Knoxville, those which can be effectively and economically operated as UT Nashville programs should be so designated and approved.

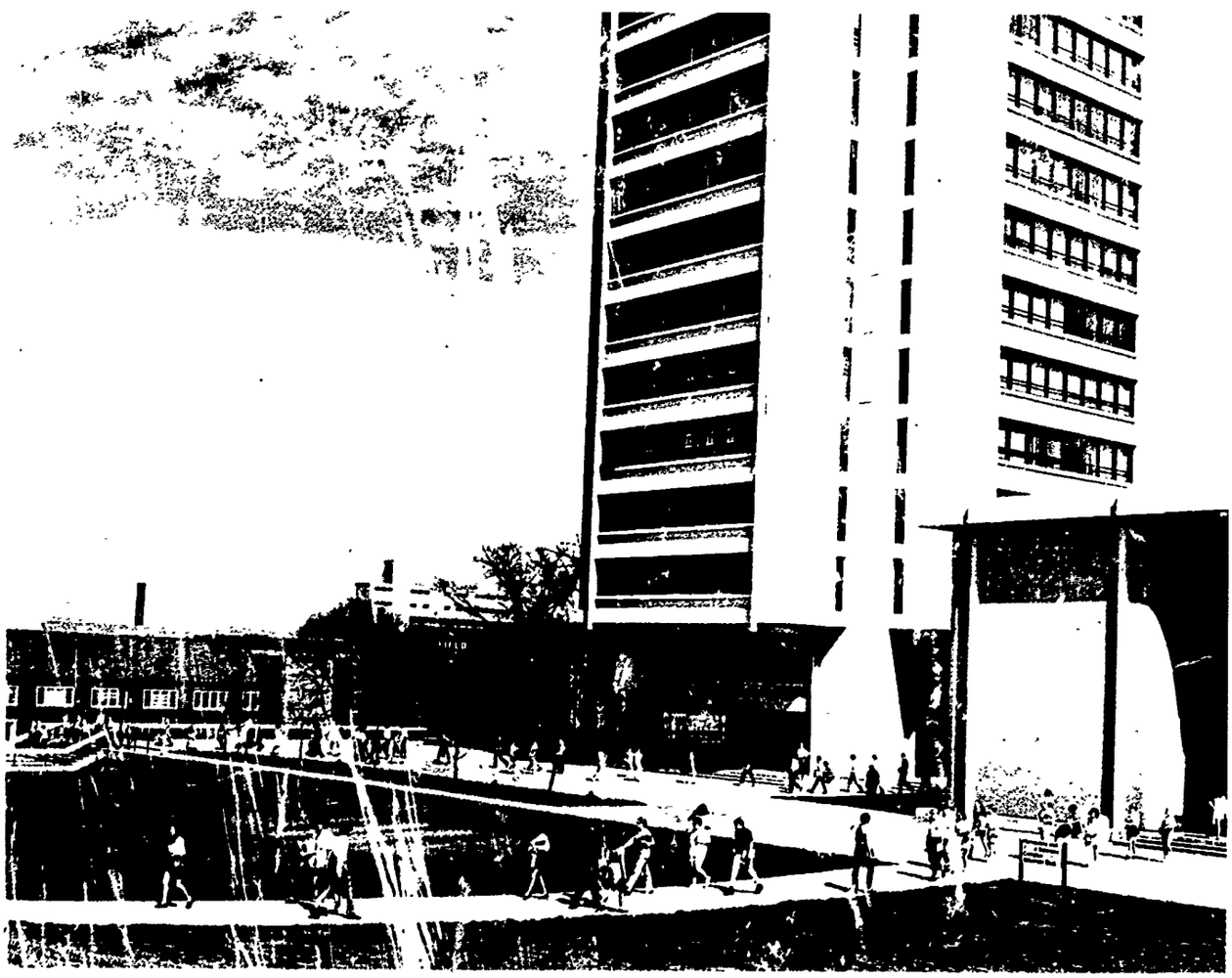
UNIVERSITY OF TENNESSEE AT KNOXVILLE

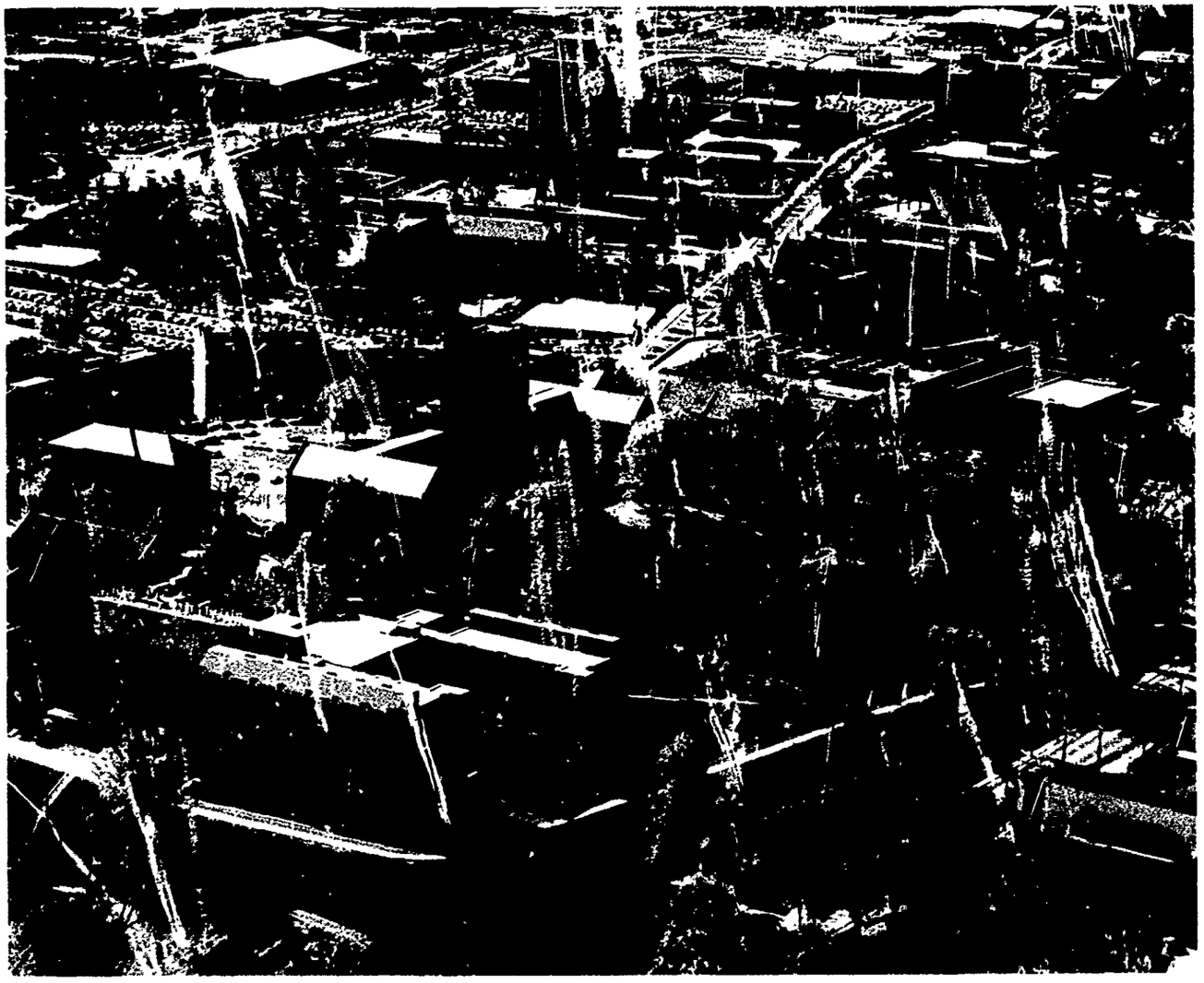
University of Tennessee at Knoxville is the principal campus of the UT System and a Federal land grant institution. Its role corresponds to that of the senior state university in other states, and it is the most comprehensive of Tennessee's public institutions in terms of teaching, research and public service. The Knoxville campus offers doctoral work in about 50 fields, master's work in approximately 100 areas, and baccalaureate programs in more than 100 fields. It maintains professional programs in agriculture, architecture, education, engineering, forestry, home economics, business, nursing, law, and social work. It has an extensive research program in many academic areas through its specialized research agencies in agriculture, business, education, and public administration. Several residence centers are maintained across the State for specific programs, notably the Space Institute at Tullahoma, the Oak Ridge Graduate Program, and the School of Social Work in Nashville.

Of increasing significance is the post-doctoral education found on the Knoxville campus. Education beyond the doctorate is required for preparation in many highly-specialized areas, such as life sciences, chemistry, physics, engineering, and the behavioral and social sciences. In general, post-doctoral trainees are supported from sources other than State revenue, although the University does make available sufficient space and supporting services to facilitate the work of these highly-trained personnel.

As enrollment grows toward a maximum of 27,000 or 28,000 students, UT Knoxville's resources should be devoted more toward graduate and professional education, with freshman enrollment being limited. It is unlikely that the number of undergraduate pro-

McClung Tower and the Humanities and Social Sciences Building are two of the newest places at UT Knoxville.





The expanding facilities of University of Tennessee at Knoxville include new and traditional architecture.

grams will need to increase significantly in the next several years. There will, however, be important changes in courses, curricula, and program emphasis. A few new undergraduate majors are expected and consolidation of some highly-specialized majors will be made. Inauguration of several interdisciplinary majors drawn from existing courses may also be anticipated. Such new programs should be consistent with the developing needs of society and with a rounding out of appropriate undergraduate majors for UT Knoxville. The plan to build some majors by combining the efforts of different departments, and even different colleges, should make for economy in developing them. Still, the University must be selective and establish priorities for its anticipated undergraduate program development.

UT Knoxville's graduate programs are by far the most extensive in the State. In planning for future graduate development, it must give attention to the many existing programs, evaluating the need to modify them in various ways to conform to changes in the societal needs and student demands. Some with continued low enrollment may need to be phased out in order for the University to attain objectives of higher priority. Others may need to be merged into changed combinations of courses and graduate majors whenever such action is both educationally sound and economical. As employment prospects for people with advanced graduate and professional degrees change, there must be corresponding changes in the University's offerings, although major changes should not be effected on the basis of temporary employment fluctuations.

Such considerations are reflected in UT Knoxville's long-range plans for graduate programming which involve the merging or consolidating of some existing master's and doctoral programs into new ones, and the elimination of others. These plans are not yet complete, and will require approval as new programs are proposed for implementation. Projections include an extensive list of new programs which will, in part, need to be balanced by merger or elimination of marginal existing programs. It will be incumbent on UT Knoxville to assess societal needs carefully and objectively, and to present convincing documentation in support of requests for the initiation of new programs. The University must, however, respond alertly to the need

to realignment of disciplinary boundaries and reallocation of existing resources; and, with the help of the Commission, it should work to reduce the substantial lag time involved in identification of areas of need, initiation of new programs, and the flow of graduates into society.

UT INSTITUTE OF AGRICULTURE

The UT Institute of Agriculture encompasses the University's three broad statewide programs serving the rural and agricultural interests and the homemakers of Tennessee. These include the instructional program of the College of Agriculture at UT Knoxville and School of Agriculture at UT Martin; the Agricultural Experiment Station with its experimental farms in all topographical regions of the State; and the Agricultural Extension Service with its agents in all 95 Tennessee counties.

UT INSTITUTE FOR PUBLIC SERVICE

The development and coordination of statewide programs of special services to people in urban areas, to all levels of government, and to Tennessee business and industry are responsibilities of the Institute for Public Service. The institute works with the chancellors and Public Service Councils on each campus in delivering the expertise of the entire UT System in meeting the State's needs in these areas.

UT DIVISION OF CONTINUING EDUCATION

The Division of Continuing Education is responsible for UT's system-wide effort in providing educational programs to people of all ages and walks of life who desire to pursue studies outside the traditional college setting. Such activities include special evening school offerings, either for college credit or non-credit, as well as correspondence instruction, conferences and institutes; educational radio and television programs, extension library services, a cooperative education program for students attending on an alternate work-study basis, a proficiency testing program through which persons can earn college credit without attending classes, and other programs. Each of these efforts involves not only the System administration, but also the corresponding continuing education organizations on the five campuses.

Modern classrooms with closed-circuit television (left) offer today's students a better atmosphere for learning on "The Hill" (below) at the UT Knoxville campus.

COMMUNITY COLLEGES FOR TENNESSEE

SUMMARY

A comprehensive system of community colleges, numbering about 12 institutions, is recommended. Nine have already been established. Chattanooga, Knoxville and Nashville are priority locations for new community college programs, and one or two others may be considered in metropolitan areas. If these programs are extended, all the community colleges and the three technical institutes would be within commuting distance of 95 per cent of the State's population.

Areas so sparsely populated that they cannot provide the requisite number of students for efficient operation of a full community college program may have their educational needs met in other ways. One is through area vocational schools which can provide non-collegiate occupational training. Another is through some freshman and sophomore courses offered in a center operated by a community college. A third alternative is a limited number of two-year programs offered by degree-granting institutions on main campuses or in centers elsewhere.

If 12 community college programs are in existence by 1975, from 15,000 to 20,000 full-time-equivalent students will be enrolled; half at the four metropolitan schools and the others in the remaining colleges. Most of the growth in undergraduate enrollment after 1975 is expected to occur in community colleges where the open door policy permits any high school graduate to take some post-high school instruction.

The total operating expenditures for community colleges is estimated at $20 to $26 million annually by 1975-76, and $40 to $45 million five years later.

Community colleges provide educational opportunities for a variety of students: Those who cannot afford to attend colleges away from home; those who need to work part-time; those who are not motivated to attend a four-year institution; those preferring a small college environment and more faculty contact; those who have not reached full maturity; those desiring a technical or semi-professional career; and adults desiring additional education for personal and/or economic reasons.

To serve student and community needs, the community college curriculum should include the first two years of a four-year college program, transferable to a senior institution if the student seeks a bachelor's degree. In addition, a variety of occupational programs designed to prepare students for careers in industry, the health professions, business, and other occupations should be offered. Finally, courses and programs of a general nature should be available for adults desiring to improve their knowledge or skills for vocational or general cultural purposes.

Problems facing community colleges include the need for coordinating efforts between them and secondary schools, vocational schools, technical institutes, and the colleges and universities. Such coordination would reduce duplication of effort, and insure that the needs of the students and communities are being met.

Professional staff services, such as pre-planning, construction design, and curricula planning, are necessary if the community college operation is to be effective as well as economical.

Another problem results from the transfer of community college students to four-year institutions. Credits may be lost because the institution has difficulty in determining the courses it will accept, or because it places a limit on the number of credits it will accept. To resolve this problem, transfer policies which are consistent for all institutions need to be established.

No area of higher education has contributed more to the "American dream" of providing all persons an opportunity to receive the benefits of continued education than has the community college. Such institutions represent a truly American development which has grown tremendously in the last 20 years. They offer higher education opportunities to millions of young people who otherwise would never go to college.

In the fall of 1971 there were community colleges operating in all 50 states, with more than 1,100 institutions enrolling more than two million students. These community colleges, in providing a wide variety of educational programs to the people in their service area, have contributed to the economic and cultural progress of their communities.

PURPOSES OF THE COMMUNITY COLLEGES

Community colleges are designed to provide additional educational opportunity, beyond the high school, within commuting distance of most Tennessee citizens. This goal requires the State to continue developing community college programs as part of the total college and university system. Tennessee has authorized, through 1972, the establishment of nine community colleges and three technical institutes. These 12 institutions are within commuting distance of more than 85 per cent of Tennessee's population. The technical institutes, however, provide only part of the total community college programs. If most Tennessee youth are to have access to comprehensive post-high school educational opportunities within commuting distance of their homes, additional community college programs will be needed in the near future.

Community colleges provide educational opportunity for a variety of students who are not adequately served by other institutions. These include:

(1) Those without the necessary funds to attend a residential college away from home. Expenses of attending college are considerably reduced when a student lives at home. In fact, more than one-third of our youth come from homes with an average family income of less than $5,000 a year. Low-cost college opportunities, therefore, are especially important for this group.

(2) Those who need to work part time. Many young people need the income from part-time jobs, and many business and industrial firms need their services. Such employment-education arrangements are mutually advantageous to students and the business community.

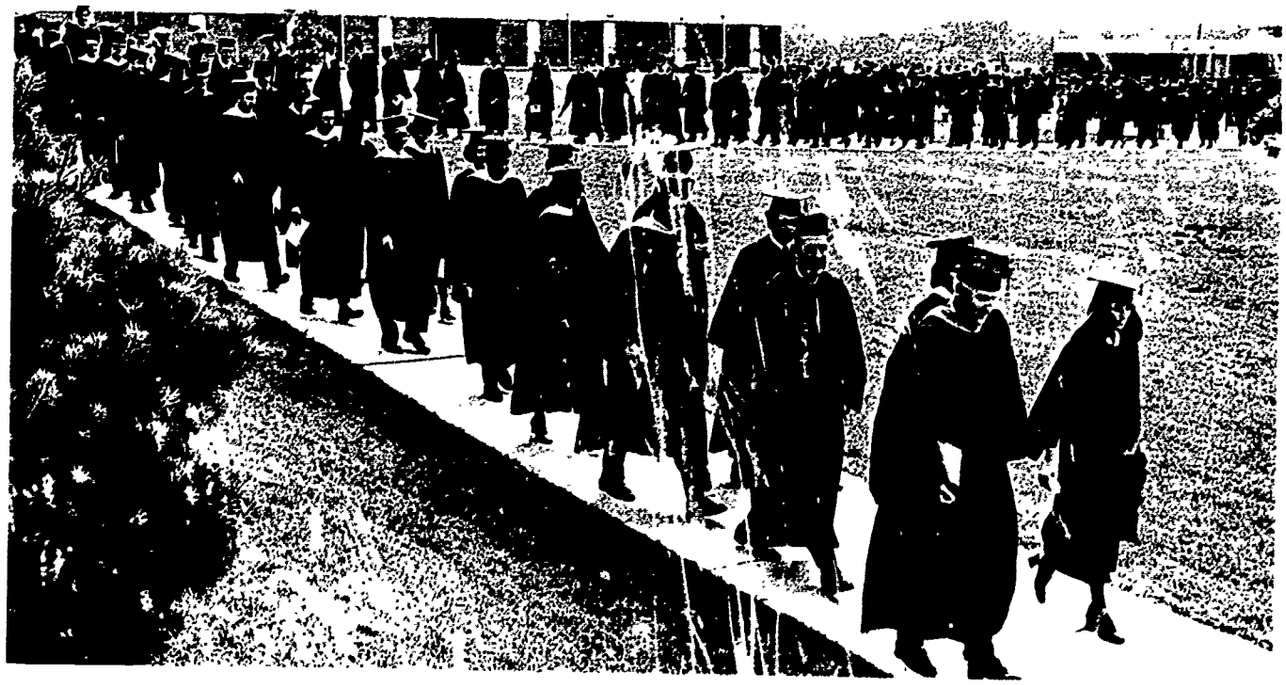
(3) Those not motivated to attend a four-year college. Some young people, who have great potential for productive service, may not wish to attend college. The proximity of the community college is an assist in encouraging these persons to continue their education, often in terminal-occupational programs which prepare them for a better position.

(4) Those preferring the environment of a smaller college, the opportunity for more contact with faculty, and a more intimate relationship with the student body.

(5) Those who are "late bloomers." Some 18- and 19-year-old individuals have not reached their full maturity. Previous poor academic records may not be accurate predictions of their abilities, so that the "second chance" offered by the community college is particularly important to them.

(6) Those desiring to study a technical or semi-professional occupation. A large number of technically-oriented occupations have developed during the past

Administrators, faculty and students march to graduation ceremonies at Jackson State Community College.



two decades, and many students are needed to enter these occupations.

(7) Adults who seek additional education for personal and/or economic goals

THE NEED FOR COMMUNITY COLLEGE PROGRAMS

The need for community college programs in Tennessee has been emphasized in part by the lower-than-average rates of college attendance. In 1960, for example, college enrollment in Tennessee was 15.6 per cent of the 18-24 age group. The comparable national average was 21.7. By 1970, Tennessee's percentage had risen to 28, but the national average increased to 32 per cent In this industrial-technological society, a state cannot afford a limited development of its human resources if it expects to progress economically. Closing the gap between the Tennessee and national percentages of young people going to college means that. by 1980, Tennessee college enrollment will have to grow to approximately 35 per cent of the State's 18-24 population. Most states have found that they cannot increase post-high school educational opportunity to this level without a comprehensive system of community colleges.

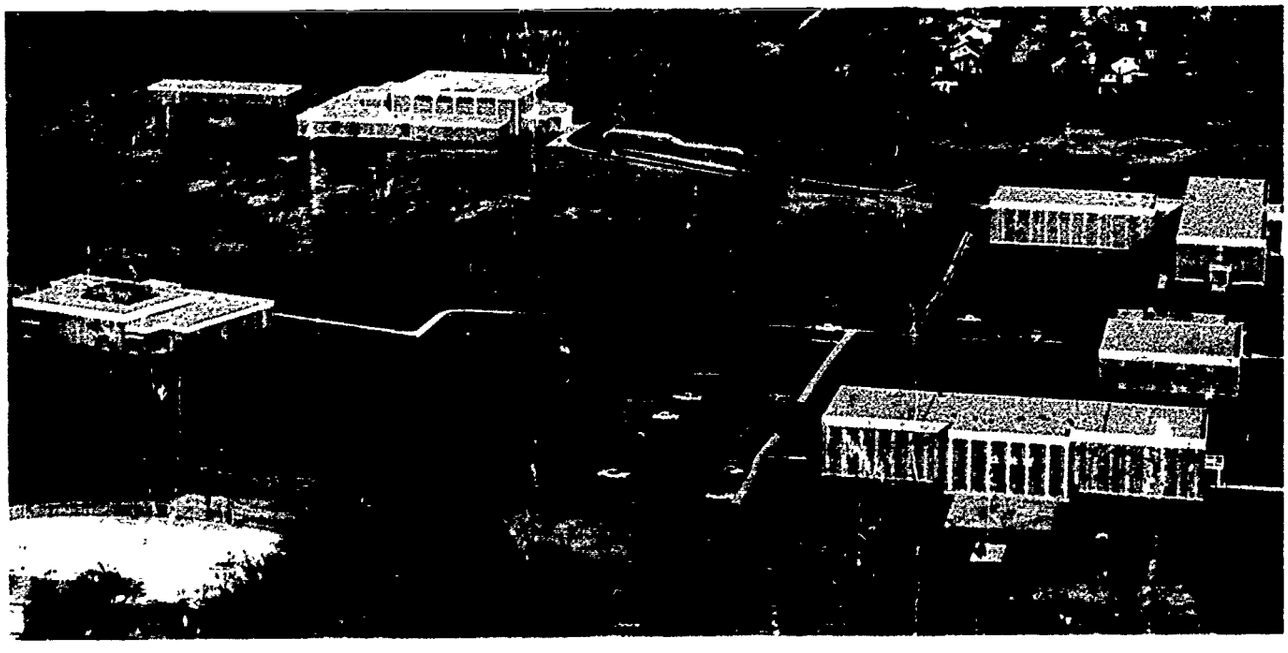
Community college programs will be especially attractive to the seven types of potential students listed earlier; most of whom. probably would not attend a college or university The Higher Education Commission has estimated that there will be about 175,000 college students in Tennessee in 1980 if no additional community colleges are established. If a full community college system is developed as recommended. college enrollment is projected at 180,000-195,000.

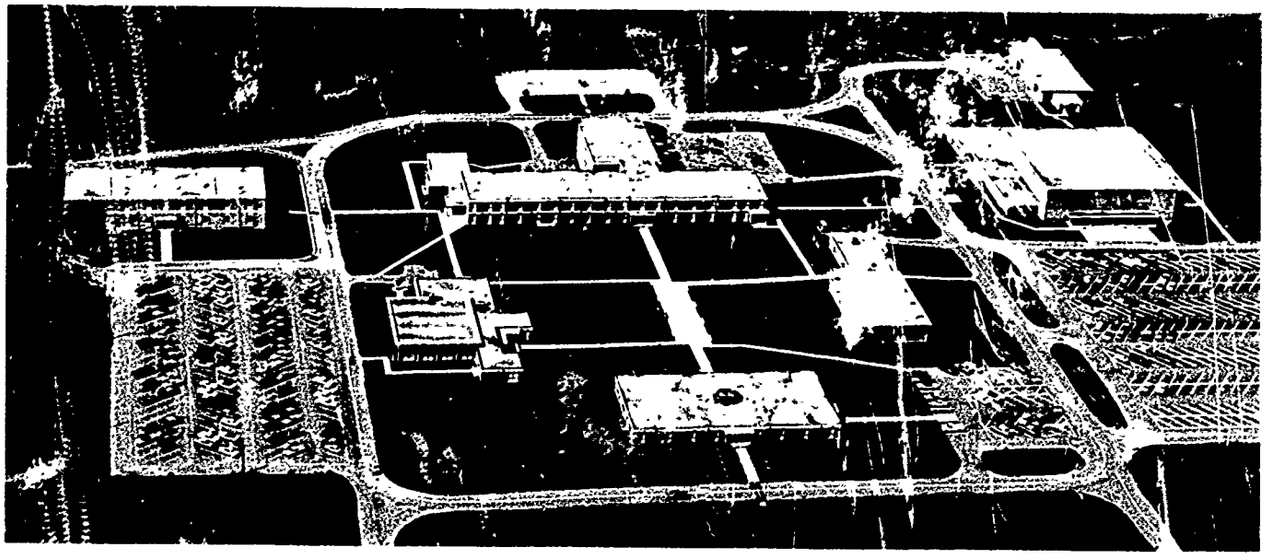
Another important reason for further development of community college programs is that the larger universities—UT Knoxville and Memphis State—will eventually reach a size where enrollment limitations will be necessary. The community colleges, therefore, will provide an alternative for students who cannot be admitted to these institutions at the freshman level After successful completion of the community college program, such students can transfer to any senior university.

ORGANIZATION OF COMMUNITY COLLEGES

All of the community colleges are now governed by the new Board of Regents, which is responsible for their planning and staff services. These institutions have been developed up to this point without the assistance of a professional staff, at the State level, which was experienced in community college administration Furthermore, since all community college presidents, with the exception of Shelby State, were appointed about the time the colleges were scheduled to open. these chief administrators had no opportunity to contribute to the planning of their institutions. If the system of community colleges is to be effectively developed, experienced professional staff services must be provided at the State level. Such personnel should save the State many times their salaries through effective design of buildings, and through planning of needed curricula offerings Their expertise should assure an effective and economical beginning for any new community colleges and an improved operation for existing institutions. By the time the system of

The facilities at Dyersburg State Community College include (counter-clockwise from lower right) the Administration Building, Library, Classroom Building, Gymnasium, General Maintenance Building, and Student Center.





The Jackson State Community College facilities include (clockwise from center foreground) the Administration Building, Student Center, the Sciences Building (far left), Classroom Building, Maintenance Building (far right), Physical Education Building, and Library.

community colleges is fully developed, there will be about 12 institutions enrolling from 25,000 to 35,000 students, with total annual budgets of $35-$40 million. They will represent a very important area of responsibility for the Regents and its staff, and they will require the leadership of individuals who are well acquainted with community college operation

Since the Regents also govern the six regional universities, liaison and coordination between the two-year and four-year institutions will be readily effected. On the other hand, higher education institutions are no longer associated with the State Board of Education which oversees grades 1-12 and the vocational-technical institutions. Arrangements, therefore, to coordinate the efforts of community colleges with that of the secondary schools should be developed. Since community colleges operate a number of occupational-technical programs supported in part by Federal vocational funds, they must also have effective representation before the State Board for Vocational Education.

LOCATION OF COMMUNITY COLLEGES

Each community college that is established should offer a comprehensive program consisting of the first two years of a four-year college program, occupational programs, and continuing education programs for adults which include credit and non-credit offerings. To offer such a full range of programs in an economical manner, a minimum enrollment of 1,000 full-time equivalent students is needed at each institution. Community colleges should not be established in locations where a thousand FTE students cannot be expected to enroll within the first three to five years.

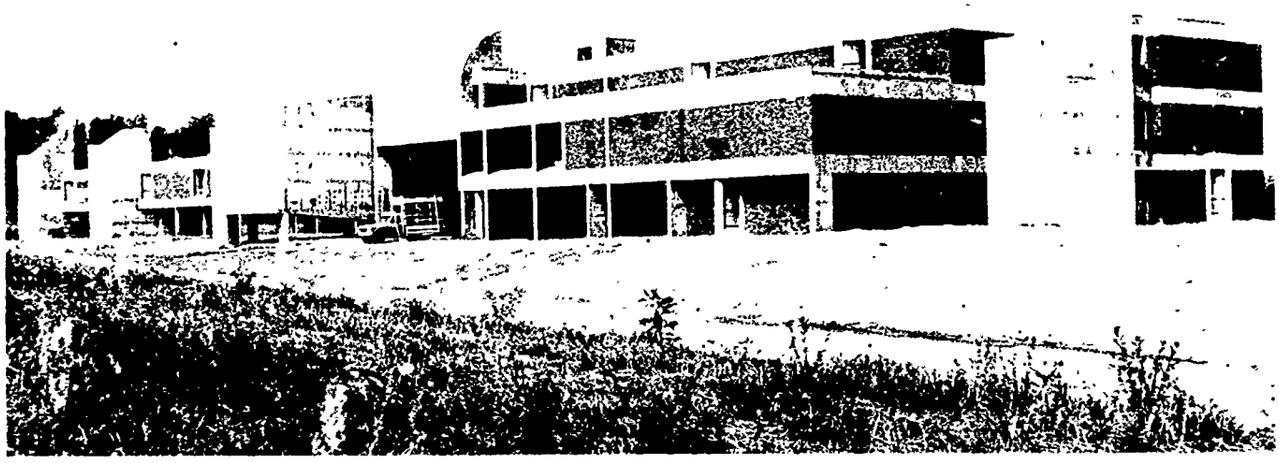
Community colleges should be designed as commuting institutions without dormitories, and located so as to provide easy access to the maximum number of students in the service area. Normally, students cannot be expected to commute more than an hour's driving time to attend college. Thus, most students will come from an area within 30 miles of a college. In a few specialized situations, there may be a need to house a limited number of students attending some specialized program, or who come from a sparsely-populated area where a community college cannot be justified. In these cases, every effort should be made to provide the necessary housing through the community housing market.

The following criteria should determine the priorities for location of community colleges:

(1) The potential number of students to be served. The present and projected number of high school graduates, and the per cent of graduates living within commuting distance of the proposed location who are not now attending college will be used as one determinant.

(2) The need for occupational programs as evidenced by surveys of local business and industry.

(3) The proximity of other opportunities for higher education within the proposed service area of the community college. Normally, a community college would not be located in the same county with a degree-granting institution, unless the need for additional educational opportunity can be demonstrated. For example, metropolitan areas of more than 250,000 people have a sufficient number of potential students, not now served by degree-granting institutions, to justify establishment of a community college in each of them. This is true even though each already has a degree-granting public institution. The need for community college programs in the urban areas is most important. They can offer educational opportunities for youth who, without the benefit of this additional education, would have very limited job opportunities.



The facilities are of modern design at Walters State Community College on Appalachian Development highway.

(4) An adequate level of local community interest as measured by the provision of a suitable site and $250,000 toward initial campus development.

Application of the above criteria indicates that a community college should be located in each of the four largest metropolitan areas. Memphis (Shelby State) is already in operation, but Chattanooga, Knoxville and Nashville should also have community college programs. The Tri-Cities area would also qualify, but East Tennessee State University now operates two-year branches in Kingsport, Bristol and Greeneville, and it might be more advisable to establish a technical institute in the Tri-Cities area to provide those college level terminal-occupational programs which will not be offered by the branches. If it develops that ETSU cannot meet all of the educational demands, the technical institute could enlarge its effort to include the full program of a community college.

Other areas of the State may meet the criteria in future years. A community college program will probably be justified in Middle or West Tennessee between Jackson and Nashville, although at the present time there is no location with sufficient population to achieve the 1,000 student minimum enrollment. The specific locations for future community colleges can be identified through periodic assessment of communities interested in development of community college programs.

Some areas of the State are so sparsely populated that they cannot provide the requisite number of students for efficient operation of a full community college program. Their educational needs, however, can be met in several ways. One is through area vocational schools which can offer non-collegiate occupational training. These are already established in 27 locations in the State and additional ones are planned. A second possibility is by offering a limited number of freshman and sophomore courses in a center operated by a community college. For example, Jackson State or Columbia State might operate a center in areas too remote from their campuses for students to commute there conveniently.

A third method to provide community college programs is through operation of a limited number of two-year programs by degree-granting institutions, either on the main campus or in centers some distance from the main campus. Universities serving areas where a community college currently is not feasible include Austin Peay, Tennessee Tech and UT Martin. In addition, East Tennessee, as mentioned earlier, already operates a two-year branch in Kingsport. Although these institutions already operate off-campus centers, and East Tennessee State's center at Kingsport is in a university-owned facility, none provide the equivalent of a community college program. These universities should consider establishing some additional two-year occupational programs with an admission policy similar to that of the community colleges. If, in the future, student demand justifies separate institutions of about a thousand students, such programs could be separated from the universities to form independent community colleges.

The map (Figure 4) shows the existing community colleges and technical institutes. When potential locations for additional community college programs are developed, there will be community college programs within commuting distance of more than 95 per cent of the college-age population of the State.

RELATIONSHIPS WITH OTHER HIGHER EDUCATION INSTITUTIONS

In general, universities should not plan to offer two-year programs except in situations where it is impractical to establish a community college. Two-year programs usually do not attract as much attention in a university, where they are secondary to the faculty's main interests, as they do in a community college where they are the prime interest of everyone. The more the senior institutions get involved with graduate

and professional programs, the more difficult it will be to get them to give adequate support to two-year occupational-terminal programs. Nevertheless, it will probably be necessary to continue some two-year programs for an indefinite period in the present universities. The universities in metropolitan areas should not plan any new two-year programs, except possibly in critical areas such as allied health. But they should also plan to transfer these two-year programs to metropolitan community colleges when these are fully established and capable of assuming responsibility for them.

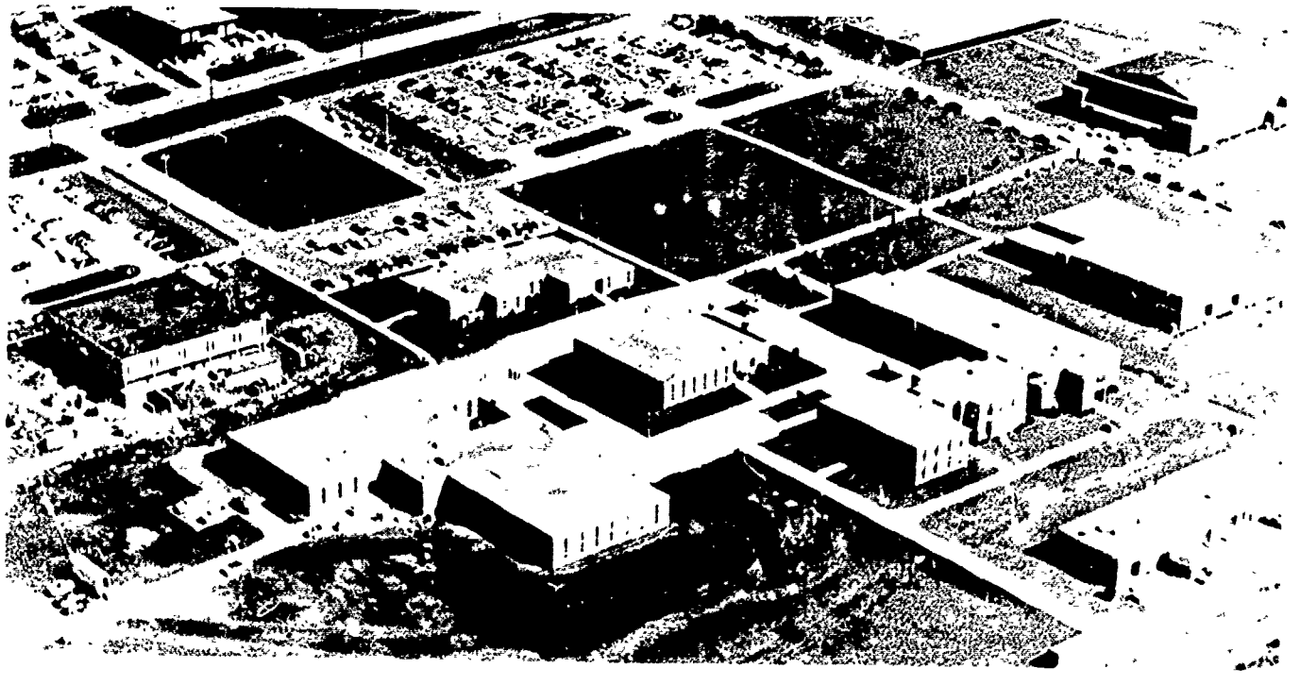
Chattanooga, Memphis and Nashville each have technical institutes which provide two-year, college-level, occupational programs in engineering technology and some business occupations, such as data processing. The programs of these institutions offer an important type of specialized training. But they do not provide the full range of occupational programs required in a metropolitan area, nor do they offer the college transfer or community service programs provided by community colleges. Therefore, each metropolitan area should have full community college programs.

One method to achieve this is to expand the existing technical institutes into comprehensive community colleges, and to merge the community college in Memphis with the technical institute. This would be the least expensive way to provide the necessary educational programs, and would also be of considerable advantage to students undecided about whether they want to pursue an academic college program or an occupational-terminal one. The students who desire an occupational program are often undecided about a particular occupation. Guidance of the student into the right program is facilitated when a comprehensive program is offered at a single institution.

Another way to provide comprehensive community college services—without actually merging technical institutes and community colleges—would be to effect an agreement for each metropolitan area on the occupational programs to be offered by the technical institutes. Other occupational programs, as well as other two-year programs, would be offered by the community colleges. Any new programs proposed by technical institutes or community colleges would then require State-level coordination and approval by the State Board for Vocational Education and the Higher Education Commission. In addition, technical institutes and community colleges could establish a joint planning committee to coordinate ways to share faculty and facilities, and to avoid duplication of effort. These arrangements for coordination could also be extended to the public four-year institutions in the same community.

As the community college system grows larger and more students transfer between two-year and four-year institutions, problems of transfer credit and articulation of programs between both types of institutions will become more numerous. It is important that students who move from a community college to a university, or vice versa, do not lose credit toward degrees in such transfers. Such loss is likely to occur for several reasons. Some community college courses are not in the university curriculum. When they are not, there is difficulty in deciding what credit should be given the student in transferring. Another problem is that some courses at the junior level in a university are offered at the sophomore level in a community college, again creating a transfer issue. Still another difficulty arises from policies limiting the number of freshman and sophomore credits which can apply toward a bachelor's degree; sometimes resulting in a university being unable to allow all of the community college credits the student earned. So long as the number of transfers was small, these problems could be handled by direct negotiations between two institutions. But the numbers are growing to the point that

Tennessee's first State community college, at Columbia, was dedicated in 1967 by Mrs. Lyndon B. Johnson.



these problems of articulation demand settlement through policies consistent among all of the institutions. In order to form such policies and to revise them as needed, a committee representing community colleges and four-year institutions should be established and maintained on a permanent basis.

COMMUNITY COLLEGE PROGRAMS

It is recommended that all community colleges offer a comprehensive program designed to meet a diversity of post-high school needs. The community college should offer a variety of occupational programs to prepare students for careers in industry, the health professions, business, and other occupations. These institutions should also offer the first two years of a four-year college program, transferable to one of the senior institutions for students wishing to complete a bachelor's degree. The community college should also offer courses and programs of a general nature for adults who desire to improve their knowledge and skills for vocational or general cultural purposes.

It will not be possible for all community colleges to offer occupational programs in all areas. A careful selection will be required to assure that the programs chosen will have enough enrollment to keep costs reasonable and will be related to the needs of the community for graduates. The more specialized engineering technologies and allied health occupations should be developed only in those locations where enough students can be recruited to operate a quality program economically.

The programs of community colleges generally should be open to any high school graduate or adult who passes an equivalency exam. Some of the technical curricula may require additional evidence of proficiency in math, science, or other skills necessary to successful completion of the program.

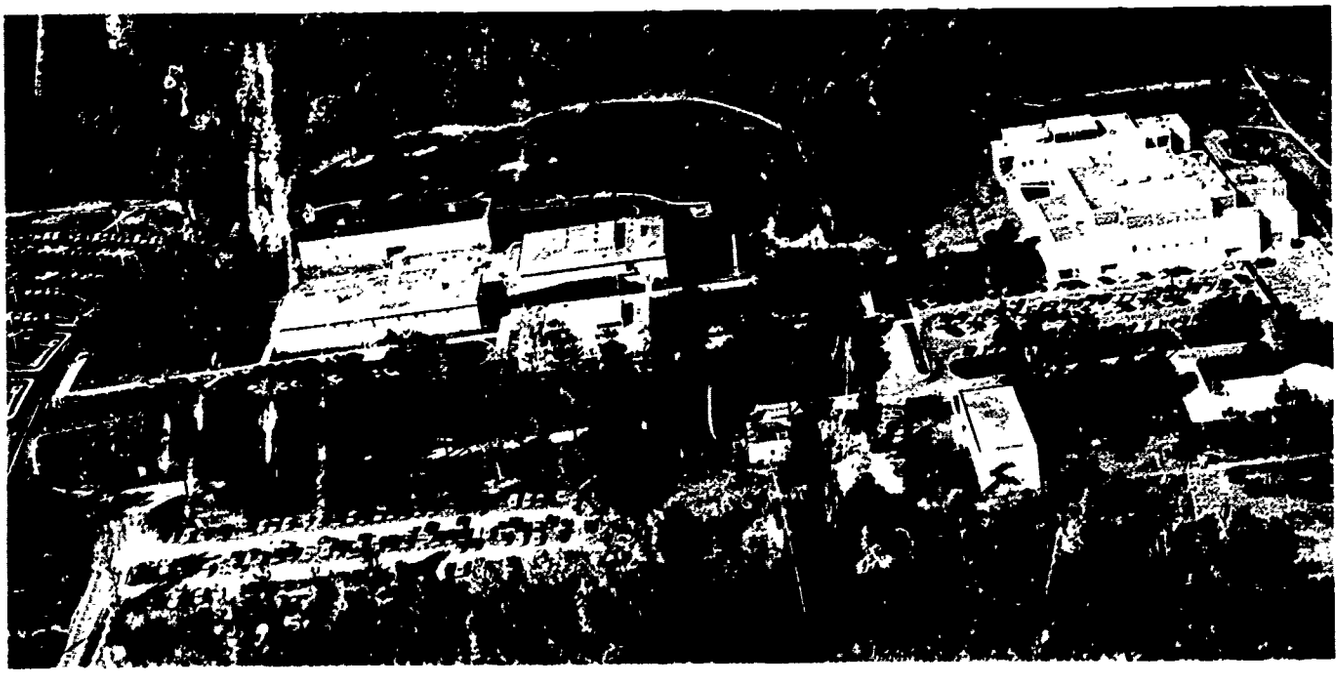
The community college should provide good occupational and academic counseling and guidance programs for all students. Many students entering community colleges are unsure of their academic or career objectives, and they may need more counseling than students attending a four-year college. The diversity of students served and their lack of clarity about their future plans make it very important that they be able to transfer without too much loss of time from academic to occupational curricula and vice versa. Each student should have the opportunity to pursue the first two years of a college degree program, an occupational program leading to a job and career, or simply to take courses in a field of interest.

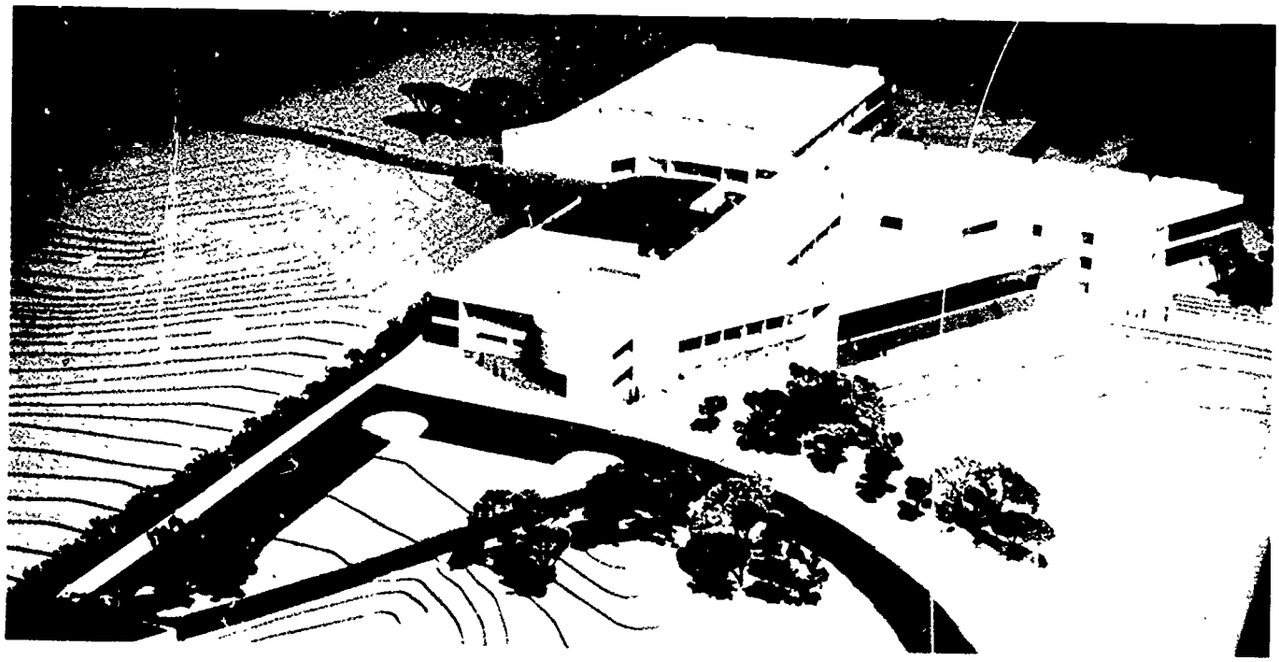
Each of the three major program areas--occupational, college transfer, and continuing adult education--within the community college should be administered by someone familiar with the educational program, and the problems in developing that program area.

COMMUNITY COLLEGE SYSTEM ENROLLMENT

If a system of community colleges is fully established by 1975 with about 12 institutions, including one in each of the metropolitan areas, 15,000 to 20,000 FTE students would be enrolled. About half would be in the four metropolitan community colleges and the others in the remaining community colleges.

Cleveland State Community College is one of nine such public institutions located throughout Tennessee





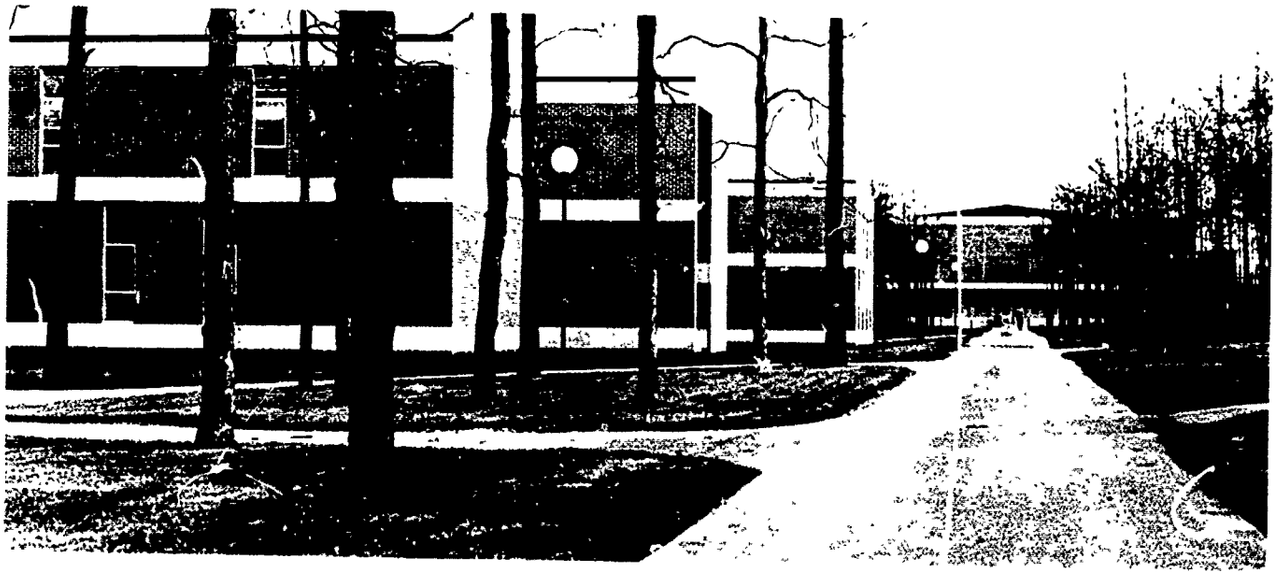
A model (above) depicts the Roane State Community College campus under construction near Harriman, Kingston and Rockwood. Below, the Classroom Building and Fieldhouse of Motlow State Community College.

A major portion of the enrollment increases expected after 1975 will be among students in the lower half of the high school graduating class, since nearly all students in the top half will be attending college by that date. The number of high school graduates in the State is not expected to increase between 1975 and 1985, so enrollment increases during that period will represent an increased proportion of high school graduates who are continuing their education. Most of the growth of undergraduate enrollment after 1975 will occur in the community colleges where an open-door policy will permit any high school graduate to attempt some post-high school work.

COST OF COMMUNITY COLLEGE SYSTEM

Current operating costs per full-time student for educational and general purposes are about $1,400 a year in the State's degree-granting institutions. They have been almost as high in the community colleges, but this results because costs per student will always be higher in a new institution just going into operation. Occupational programs in the community colleges are more expensive than academic (transfer) programs, because they usually require a lower student-faculty ratio and more expensive equipment.

Exclusive of the occupational programs, full-time student annual current operating costs in community colleges average around $1,000-$1,200 a year. The occupational programs may cost from 25 to 50 per cent more per student. Nationally per student costs have

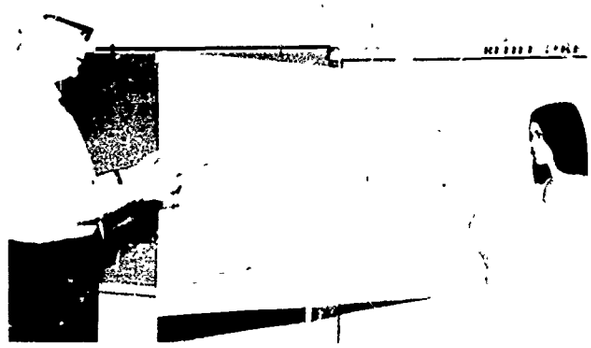


been rising five to six per cent a year in educational institutions during the past decade. A large part of this increase is in salary costs, which will probably continue to rise five to six per cent annually for the next decade.

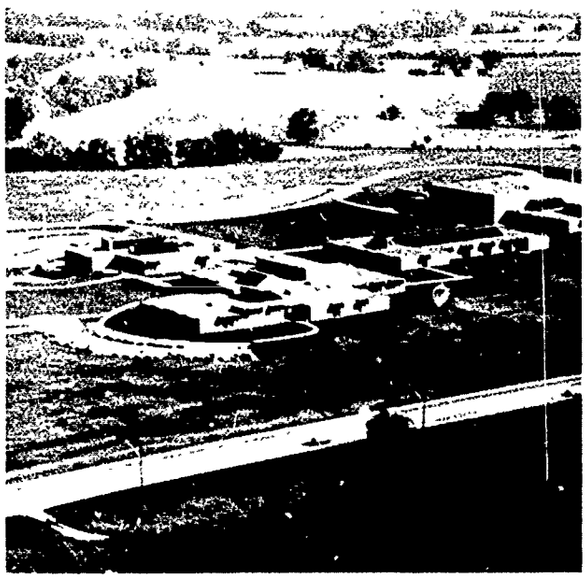
On the basis of a five per cent annual increase in cost per student, it is possible to make some estimates of the approximate cost of operating the community college system in 1975 and 1980.

Total community college educational operating expenditures would be about $20-$26 million a year by 1975-76, and $40-$45 million annually by 1980-81. If we assume that 70 to 75 per cent of these costs will come from State appropriations and the remainder from tuition and Federal sources, the appropriations required would be $15-$20 million a year by 1976, and $30-$35 million annually by 1980. It must be emphasized that these are approximations presented to indicate the general magnitude of the financial requirements.

The important comparison of costs and benefits is between the alternatives of providing some college education and providing none If attendance at a community college enables the average student to get a better job and earn a higher average income, then the costs will be counter-balanced by the greater taxes he will pay. If their average income is increased enough, they will more than repay the cost of their education; if it is rather small, they may not. Most studies have indicated that education is a sound investment and that citizens repay much more than the cost of their education in the higher taxes they pay during their working careers. If this is true for Tennesseans, the real question is whether Tennessee can afford not to expand higher educational opportunity by extending the community college system.



Geography (above) is one of the program offerings at Volunteer State Community College located in Gallatin.



LOCATIONS OF TENNESSEE'S COMMUNITY COLLEGES AND TECHNICAL INSTITUTES

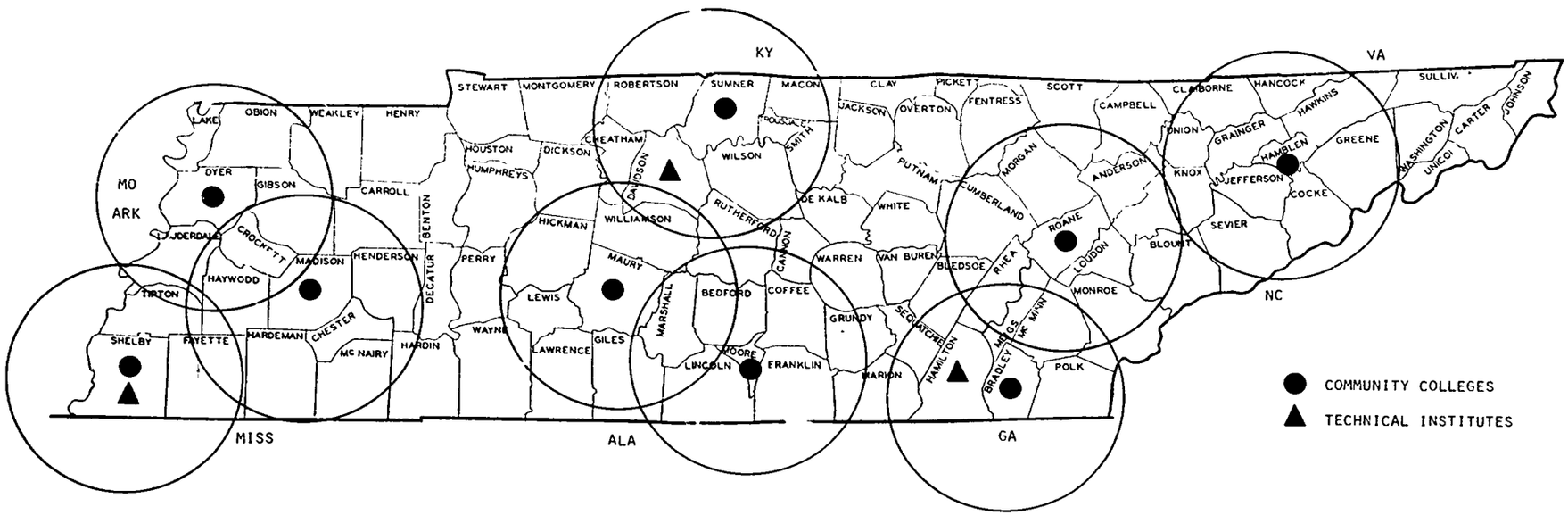


Figure 4

MAJOR PROGRAM AREAS

SUMMARY

Tennessee's public institutions offer programs in practically all areas in which students are interested, and State assistance is provided for students to study out-of-state in other fields.

Generally, programs in Tennessee's colleges and universities are efficiently operated and they produce a reasonable number of graduates. But all institutions have some programs which graduate so few students that justification for continuing them is questioned.

There are several reasons for low production. For instance, a department may offer several different majors. but much of the content is common to the majors. Other programs, although low producing, need to be retained because the courses are taken by many students majoring in other fields. Finally, some low-producing programs must be maintained if the institution is to offer a broad and balanced curriculum.

All of the low-producing programs, however, can not be justified, and institutions are urged to take a good look at low-producing programs and to take steps to increase production. consolidate them, or to terminate them.

As needs and knowledge change, it will be necessary for institutions to establish new academic programs, but consideration should be given to the effect this will have on enrollment and production in existing programs now that enrollment growth has slowed.

Colleges and universities are encouraged to emphasize those new programs which do not expand the curriculum, but which combine present faculty resources into new, more functional offerings.

This chapter includes appraisals of specialized fields --vocational or professional--in terms of demand for graduates and the need for educational programs to prepare them. It also discusses the need for development of libraries. Treatment of these specialized areas does not suggest that they represent the sole, or even the primary, function of higher education. All Tennessee institutions are properly committed to the purpose of higher education: to raise the level of enlightenment of the citizens in order to effectuate the development of an ever-improving social order, and to develop the potential of individuals so that they may live fuller lives. Educational efforts to these ends, commonly referred to as "general education" or "liberal education" are basic to all others, and must not in any respect be overlooked or undersupported financially if Tennesseans are to realize appropriate returns from their investment in higher education.

A wide variety of vocational and professional programs is offered in the State's public institutions. There are program offerings in about 50 different fields, and a number of sub-specialties within many fields. For example, the business area includes accounting, management, finance, marketing and several other subfields. These programs include the traditional arts and sciences, but for some time there has been heavy emphasis on education for specific vocations and professions: teaching, law, accounting, agriculture, engineering, nursing, medicine, dentistry and others. Only about 40 per cent of the programs are in the arts and sciences and these produce 32 per cent of the graduates. The arts and sciences programs, too, are vocational in that many specific occupations have training in these programs, such as chemists, psychologists, and journalists. While the institutions contribute to the general education and cultural growth of students, they also prepare them for specific vocational roles.

Tennessee's public institutions offer training in practically all fields in which students are interested, and State assistance is provided through the Southern Regional Education Board for students to study out-of-state in other fields. Tennesseans study veterinary medicine at Auburn University, Tuskegee University and Ohio State University through special contractual arrangements, thereby avoiding out-of-state tuition. Also through SREB, Tennessee provides assistance to students desiring study in actuarial science and pulp and paper technology in other states, since such programs are not available in Tennessee. Regional cooperation in providing educational opportunities in highly specialized fields in only a few states which serve the whole region has the potential to save Tennessee money, while giving the citizens more opportunities. These programs should be continued and expanded. Private institutions in the State also offer training in many fields, and Tennessee contracts with Vanderbilt University and Meharry Medical College to augment training in medicine, dentistry, and graduate level nursing.

For the most part, programs in Tennessee institutions are operated efficiently and they produce a

Students of music perform on the violin at Tennessee State University, founded approximately 60 years ago.

reasonable number of graduates. But all institutions have some programs which graduate so few students that justification for continuing them must be questioned. There are many reasons for low production. Occasionally there are a few students who major in a given field even though the courses are taken by many who are majoring elsewhere in the university; hence, the program needs to be retained even though degree production is low. In other cases, an institution may have many students enrolled in a given field, such as business, but may provide for them to specialize with a major in narrower areas, such as accounting or marketing. Since much of the program required of business students is similar, enrollment is good in most courses and the operation is efficient. The apparent low production in this instance is really a matter of how the graduates are labeled. Some programs which have been low-producers are experiencing enrollment increases which indicate a greater number of graduates in the future. These should be maintained until it is determined if the anticipated increase does occur.

By no means, however, can all low-producing programs be justified. In some instances, there is little demand from students. In others, the State is offering the programs at so many institutions that there are not enough students to go around. All institutions should take a critical look at low-producing and low enrollment programs, justify them if possible, and take steps to increase enrollment, consolidate programs, or terminate them.

It is necessary to establish new academic programs as needs and knowledge change. In planning for new offerings, institutions will need to give close attention to the effect this will have on enrollment and production in existing programs. It is quite unlikely that institutions will be able to continue offering all current programs while they develop timely new ones for their students. Colleges and universities should emphasize those new programs which do not expand the curriculum, but combine present faculty resources into new, more functional offerings; combinations built on a closer relationship between work experience and college education.

LIBRARY DEVELOPMENT

Strong libraries are vital to the educational function and to all programs discussed in this section. They not only support but greatly expand and extend classroom activities. The more responsibility a student has for his own learning, the more important the library is to him. Increased attention to the needs of the libraries is absolutely essential if Tennesseans are to have the kind of higher education program the times demand.

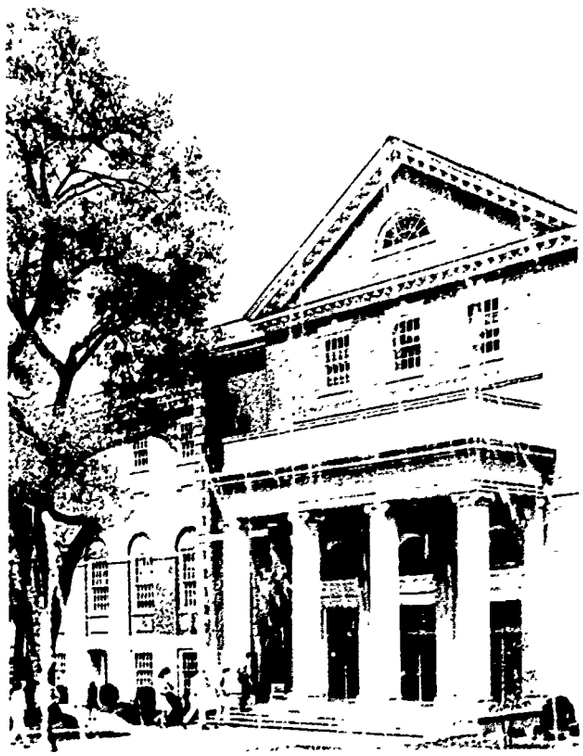
The public universities of Tennessee have a substantial deficiency of library holdings. The American Library Association has defined standards relative to volume holdings for junior and community colleges, and for senior colleges and universities which offer work through the master's degree level. When the holdings of the public community colleges and senior institutions, excluding UT Knoxville, are evaluated in terms of these standards, a one-million volume deficiency is revealed. In addition, approximately 686,000 volumes would be required to bring UT Knoxville's holdings up to the average size for major university research libraries in the Southeast on the basis of a commonly accepted formula which takes into account enrollment, faculty and number and level of graduate programs.

Obviously one solution to the library deficiency problems is to increase library appropriations to the extent necessary to correct the deficiencies. This would require approximately $21 million at current acquisition costs of $12.50 a volume. Even if the sum was spread over a five-year period, it would require an additional $4.2 million per year.

The size of the deficiency in library holdings, and the high cost of eliminating it by the conventional approach of having each library acquire the volumes required by the standards, indicates that top priority should be given to development of more effective interlibrary cooperation. New technology and computers are making it feasible for institutions to share their holdings, to avoid duplication of specialized and little used library materials, and thus cut costs without reducing service to students and faculty.

Some cooperation already exists among the libraries of the State, as well as plans for regional cooperation among research libraries. A plan for inter-library cooperation in Tennessee needs to be developed and implemented as a part of Tennessee's efforts to eliminate the library deficiencies which exist at present. With more effective cooperation between libraries, it may be possible to reduce the $21 million cost of removing the library deficiencies.

The C. C. Sherrod Library at Tennessee State University has more than 340,000 catalogued volumes.



Agriculture courses at Middle Tennessee State University also include women who major in home economics.

AGRICULTURE

In recent years there has been concern about the number of agriculture programs in Tennessee institutions. Although the proportion of Tennesseans engaged in actual farming is decreasing, the number working in agricultural business and industry is increasing. Thus, the employment picture depends on how one defines the agriculture field. This broader definition of agriculture to include more non-farm activities--means that agricultural education must be concerned with processing, marketing, and farm services and supplies, in addition to the production emphasis which once dominated educational programs. As a result, there is a continuing need for agricultural education in Tennessee. The principal issues are the number of programs needed and the character of these offerings.

Six State institutions have undergraduate agriculture programs with UT Knoxville and Tennessee State University conducting the only graduate programs. Bachelor's degrees in agriculture constitute the same percentage of total baccalaureate degree output (about 4.6 per cent) as they did 10 years ago, and the increase in variety of majors available in different areas of agriculture has been about the same as in other educational fields. Table 9 lists the bachelor's degrees awarded in 1969-71.

TABLE 9

UNDERGRADUATE DEGREES GRANTED IN AGRICULTURE, AGRICULTURAL EDUCATION AND AGRICULTURAL ENGINEERING, 1969-71

Institutions	*1969*	*1970*	*1971*
Austin Peay	2	15	16
Middle Tennessee	36	59	37
Tennessee Tech	55	69	44
Tennessee State	19	26	19
UT Knoxville	135	175	158
UT Martin	35	64	57
Total	302	408	331

Agriculture programs in Tennessee, in terms of degree output, are sized as large (UT Knoxville), medium (MTSU, Tennessee Tech and UT Martin), and small (Austin Peay and Tennessee State). These institutions, except APSU and UT Martin, have several different specializations available to students. But there is only a "general" agriculture major at Austin Peay and UT Martin.

The Tennessee State graduate program, at the master's level only, is very small. Average annual master's degree production at TSU during the 1960's was about two degrees, and 1971 was the first year in which it awarded more than five master's degrees. The UT Knoxville graduate program has averaged about 45 master's degrees annually, but the number has been decreasing. UT Knoxville has shown a rise in doctoral degree output in 1969, 1970 and 1971 (Table 10).

The Middle Tennessee region has more agriculture programs than necessary: two medium-sized at MTSU and Tennessee Tech, and two small programs at Austin Peay and Tennessee State. The Austin Peay program should be phased out with tenured faculty retained to offer a two-year pre-agriculture program. Although the Tennessee State program is small, it should be retained because it serves black students who otherwise might not study agriculture, and because it receives significant Federal funds in support of agricultural extension and research work. The TSU farm, however, located in urban Nashville, should be converted to other uses. TSU, then, should jointly utilize the MTSU farm facilities. The Tennessee State graduate program should be phased out, because all agricultural graduate education can be conducted at UT Knoxville where more extensive facilities and faculty permit a high quality graduate program sufficient for all Tennesseans desiring such training.

The remaining schools must adjust their agriculture curricula to eliminate programs producing few graduates and to give greater emphasis to non-farm production aspects. The extension programs of UT Knoxville and Tennessee State should be coordinated closely to provide needed services in the most effective and efficient manner. All institutions should cooperate in the use of research facilities. While UT Knoxville, as the only future graduate agriculture school will be the

TABLE 10

GRADUATE DEGREES GRANTED IN AGRICULTURE AND AGRICULTURAL EDUCATION, 1969-71

Institutions	*1969*		*1970*		*1971*	
	Master's	*Doctorate*	*Master's*	*Doctorate*	*Master's*	*Doctorate*
Tennessee State	4	---	4	---	11	---
UT Knoxville	71	8	49	16	30	19
Total	75	8	53	16	41	19

only institution with extensive research activities, the research facilities of the experiment stations should be available for use on a cooperative basis by the faculties in all schools.

FORESTRY

Forestry is an area of study closely related to agriculture. UT Knoxville has one of the newer forestry schools among the 15 in the Southeastern states. The only other Tennessee college offering a forestry degree is University of the South, but this is a small program. Both bachelor's and master's degrees are offered at UT, and the graduating classes are about average size: 44 bachelor's and five master's degrees in 1971. The Knoxville program currently is operating at capacity, but could accommodate more students with additional resources, thus enabling it to meet the demand and making it unnecessary for any additional forestry programs in the foreseeable future.

ARCHITECTURE

UT Knoxville has the only architecture school in Tennessee, offering a program only at the undergraduate level. Its first students were graduated in 1969 when 20 received architecture degrees. The number had grown to 42 by 1971 (Table 11).

TABLE 11

UNDERGRADUATE DEGREES GRANTED IN ARCHITECTURE, 1969-71, AND PROJECTIONS FOR 1973-75

ACTUAL		*PROJECTED*	
Year	*Number Graduated*	*Year*	*Number Graduated*
1969	20		
1970	35	1973	75
1971	42	1974	82
1972	—	1975	85

Presently, more than 500 students are enrolled and half are freshman. The school is expected to produce about 85 graduates annually by 1975. When UT Knoxville School of Architecture reaches its projected size, it will be producing as many architects as any Southeastern school now produces, except University of Florida. At that time, Tennessee should be graduating as many architects per year, in relation to its population, as most of the other Southeastern states.

Although there has been relatively little demand for graduate study in architecture, there is evidence of some increase. However, there are already seven master's programs in the Southeast, two each in Georgia and Virginia, and one each in Florida, Louisiana and South Carolina. Only Georgia has been graduating more than two students annually. If the master's degree should become the first professional degree in architecture, thus substantially increasing the demand for graduate education, establishing a graduate program at Knoxville will probably be required. Unless the master's degree does become the first professional degree, the alternative of contractual arrangements for accommodating Tennessee students at other institutions in the region should be explored and utilized if possible.

In summary, there should continue to be a good demand for architects, but there is no indication of a shortage in Tennessee. Hence, UT Knoxville should be able to educate all the architects needed in the State for the foreseeable future, and there should be no need to initiate graduate training during the next few years.

BUSINESS

Business is a popular major. About one-fifth of the bachelor's degrees awarded in Tennessee public institutions are in business, and their number has been increasing each year. All four-year State institutions offer majors in business, most of them with options in several special areas. Twenty-one Tennessee private colleges also have business programs. Table 12 shows baccalaureate degree graduates during 1969-71.

TABLE 12

GRADUATES OF BACHELOR'S DEGREE BUSINESS PROGRAMS, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
Austin Peay	56	81	96
East Tennessee	197	191	220
Memphis State	388	418	474
Middle Tennessee	211	200	206
Tennessee State	37	65	77
Tennessee Tech	173	143	161
UT Chattanooga	62	73	109
UT Knoxville	490	629	631
UT Martin	49	68	69
UT Nashville	—	—	66
Total Public	1,663	1,868	2,109
Total Private	559	623	543
Total All Institutions	2,222	2,491	2,652

Six State universities have master's degree programs in business: East Tennessee State, UT Knoxville, UT Chattanooga, UT Nashville, Middle Tennessee State, and Memphis State. With the exception of the new program at Nashville and the one at Chattanooga, all produce a reasonable number of graduates. About seven per cent of the master's degrees awarded in 1971 were in business fields and the number has been increasing rapidly. There was an increase of more than 50 per cent between 1969 and 1971 as shown in Table 13.

TABLE 13

GRADUATES OF MASTER'S DEGREE BUSINESS PROGRAMS, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
East Tennessee	22	24	20
Memphis State	45	79	91
Middle Tennessee	0	4	21
UT Knoxville	59	62	74
UT Chattanooga	7	12	2
UT Nashville*	—	—	—
Total	133	181	208

*New program initiated in 1971.

Enrollment at the master's level is expected to continue its growth during the next decade because more working adults are expected to be in school and because there is a good demand for persons with master's degrees in business. There is a capacity for more students in the existing programs, and a master's program is available in each of the metropolitan areas of the State (two in the Nashville area). These can provide education for the numerous adult business workers in the cities and, at the same time, accommodate those students from the rest of the State who desire master's level work. Therefore, it should not be necessary to increase the number of master's degree programs in business within the foreseeable future.

There are master's degree programs for business education teachers at Austin Peay, East Tennessee State, Memphis State, Middle Tennessee State, Tennessee State and UT Knoxville. Middle Tennessee's program is operated jointly with Tennessee State. As a result of continued low enrollment, Austin Peay's program will be phased out by 1974. None of the existing programs are at enrollment capacity and they should be able to meet the demand in this field for the next several years.

The State's only doctoral program in business is a new one (1971) at UT Knoxville. It should be able to accommodate all Tennesseans who desire doctoral education in business for the foreseeable future and to satisfy the demand for faculty in other schools. Thus, new doctoral programs in business should not be needed for some time.

The usual standards by which business programs are accredited are those of the American Association of Collegiate Schools of Business. Memphis State and UT Knoxville are accredited by AACSB at the undergraduate and graduate levels and Middle Tennessee State is seeking undergraduate accreditation with the expectation of success. Although all other institutions may not desire endorsement by the association, all should place the highest priority on meeting these standards of accreditable quality in terms of faculty and teaching resources. Until they do, they should not work toward expanding their curricula except for the changes which may be required in meeting accreditation standards.

In business, as in all other fields, unnecessary duplication should be avoided. This means that there should be extensive cooperative planning among schools offering business programs, particularly in the Nashville area. The UT Nashville and MTSU master's programs are so near each other that it should be made easy for students to take courses in each without loss of credit toward the degree. Both institutions should explore the offering of a truly joint program as they have in public administration. They should arrange to employ their specialized graduate faculty in a complimentary way to utilize them most efficiently. Both schools should also be involved in cooperative efforts with Tennessee State so that their greater resources in business can assist in strengthening TSU's undergraduate program to an accreditable level.

TEACHER EDUCATION

All State senior institutions have teacher education programs; four having been established originally as normal schools designed primarily to prepare teachers. The number of students in teacher education has been growing steadily for several years. In 1971, there were 3,821 bachelor's graduates in teacher education from the public institutions, and 1,933 from private colleges. The situation in public institutions is detailed in Table 14.

The graduates in education were almost 32 per cent of all bachelor's degrees awarded, which makes this the most popular major in public institutions. There are even more students being prepared to teach than this figure indicates, because many major in something other than education but complete requirements for teacher certification. These students raise the total number of 1971 graduates prepared to teach to 3,821 and this constituted 36 per cent of those who earned bachelor's degrees in State-supported schools. Such high enrollment in education has been true for many years, and until quite recently there was a shortage of teachers in Tennessee and elsewhere. Young teachers were able to find positions easily.

Now the demand for teachers in many specialties has decreased. The need for large enrollment increases in teacher education programs—apparently mandatory

Warm and sunny weather brings a class outdoors on the Cleveland State Community College campus.

TABLE 14

PERCENTAGE OF BACHELOR'S DEGREE GRADUATES PREPARED TO TEACH, 1969-71*

	1969 Graduates			1970 Graduates			1971 Graduates		
Institutions	*Bachelor's Graduates*	*Prepared To Teach*	*% Prepared To Teach*	*Bachelor's Graduates*	*Prepared To Teach*	*% Prepared To Teach*	*Bachelor's Graduates*	*Prepared To Teach*	*% Prepared To Teach*
Austin Peay	423	223	53%	496	259	52%	541	268	50%
East Tennessee	1,135	392	35%	1,192	414	35%	1,217	400	33%
Memphis State	1,580	558	35%	1,668	842	50%	1,789	619	35%
Middle Tennessee	1,104	511	46%	1,161	547	47%	1,212	558	46%
Tennessee State	644	166	26%	758	174	23%	679	182	27%
Tennessee Tech	959	351	37%	988	374	38%	992	379	38%
UT Knoxville	2,712	669	25%	2,954	724	25%	3,101	834	27%
UT Chattanooga	407	136	33%	360	100	28%	512	173	34%
UT Martin	426	289	68%	546	389	71%	685	408	60%
Total	9,390	3,295	35%	10,123	3,823	38%	10,728	3,821	36%

*All bachelor's-degree graduates whose studies prepared them to enter the teaching profession are considered to be "prepared-to-teach" graduates. Bachelor's-degree graduates teaching in public schools while completing requirements for graduation are not included in this category.

in the 1950's and 1960's—no longer exists. The school age population will not grow during the early 1970's and may not increase in the late 1970's unless the birth rate stops declining. Elementary enrollment already has begun to decline because of lower number of births in the late 1960's.

At the same time, it would be short-sighted to assume that enrollments, faculties and resources in teacher education should be cut back radically. Some personnel shortages still exist in some fields, such as special education, community college and area vocational-technical schools, and pre-school. The present student-teacher ratio in Tennessee, second highest in the nation, should be reduced by employing more teachers. And inservice educational programs for elementary and secondary teachers should be upgraded and enlarged. An over-reaction to the present job market could produce serious shortages in the future in some areas of teacher education.

Intelligent control of the flow of graduates into the job market is needed. Those who wish to teach must be informed about oversupplied and undersupplied areas To do this, colleges must have continuing analytical information about supply and demand for teachers by subject areas and levels (pre-school, elementary and secondary). Such a study is now underway cooperatively by the State Department of Education, several colleges of education, and the Higher Education Commission.

BACCALAUREATE PROGRAMS

All senior institutions should continue their strong undergraduate programs in teacher education. However, all colleges should look toward directing students away from fields in which there is a current oversupply of personnel. This should permit some reallocation of resources and faculties in education. Adjustment, however, to the altered demand for teachers will be most difficult at institutions whose teacher enrollment constitutes the largest share of total enrollment. UT Martin, Austin Peay and Middle Tennessee State are the schools where such students constitute about half or more of the graduates.

There are a few areas where a shortage still exists One is pre-school, or kindergarten, teaching. The rate at which Tennessee moves toward a statewide system of public kindergartens will determine how many new teachers are needed in this area. The more rapidly kindergarten programs are developed, the greater the demand for such teachers. Each senior institution should consider offering an undergraduate program in this area, but care should be exercised to avoid establishing too large a faculty in the early, high-demand years. There also are apparent shortages in special education. Such programs are adequate in East Tennessee and West Tennessee institutions, except for the area served by UT Martin. That institution should move toward a relatively-small program in special education. Institutions in Middle Tennessee should work cooperatively to extend special education offerings in various areas.

MASTER'S DEGREES

All senior institutions have master's degree programs in education, some in many specialized areas and others in a few general areas. This ranges from 21 master's programs in education at UT Knoxville to three at UT Martin. As shown in Table 15, there were

TABLE 15

GRADUATES OF MASTER'S DEGREE PROGRAMS IN EDUCATION, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
Austin Peay	29	36	47
East Tennessee	102	136	152
Memphis State	387	306	478
Middle Tennessee	171	194	217
Tennessee State	102	100	75
Tennessee Tech	45	75	117
UT Knoxville	193	222	264
UT Martin	9	15	39
UT Chattanooga	47	34	23
Total	1,085	1,118	1,412

1,412 master's degrees in the various education areas awarded in 1971, which was almost 51 per cent of the total master's degrees awarded.

As the teacher shortage decreases further, it is anticipated that a larger proportion of teachers will work toward master's degrees. Thus, most of the existing programs will need to be retained. An exception is in Nashville where Tennessee State has master's programs which are duplicated by those offered at UT Knoxville on the UT Nashville campus. Both programs need to be merged into one, or one of the institutions should discontinue its program. In fields where a shortage of classroom teachers still exists, expansion will be needed at the master's level and a few new programs added, such as those for kindergarten and special education teachers.

SPECIALIST IN EDUCATION

The Ed.S degree is relatively new. In terms of requirements, it lies between the master's and doctoral levels, and usually requires one year of work beyond the master's degree. George Peabody College has been awarding this degree for several years in various subject areas as well as in teacher education. In recent years, three State universities have begun to award the degree, but only in teacher education as is the practice in most institutions which award the Ed.S. These include UT Knoxville, Memphis State and Tennessee Tech. Enrollment in Ed.S. programs is small at UT Knoxville and Memphis State, probably because each offers the Ed.D. in education and most post-master's students choose to work for the doctorate. Tennessee Tech's new Ed.S. program (where there is no doctorate) is experiencing good enrollment, and it anticipates awarding between 15 and 20 degrees each year. Several others have indicated a desire to offer the Ed S. Except for East Tennessee State, all are in Middle Tennessee: Austin Peay, Tennessee State, UT Nashville and Middle Tennessee State.

Education college authorities believe most persons desiring the Ed S. are those who will work as school administrators or supervisors. They also feel there will be some interest in the Ed.S. among classroom teachers. Tennessee public school administrators are not seeking people with the Ed.S., but some educators believe there will be a demand if colleges begin producing Ed.S. graduates. In the four Middle Tennessee institutions interested in beginning Ed.S. programs, there is a large number of students enrolled for credit beyond the master's degree. Many of these wish to apply their work toward the Ed.S. degree. East Tennessee State with its new doctoral program in education, could begin offering the Ed.S after the fashion of Memphis State and UT Knoxville. It would not, however, be reasonable for the four Middle Tennessee institutions to offer this degree in the same areas, even though it would be relatively inexpensive because of the existence of students and course work beyond the master's level. These institutions should work toward cooperative development of non-duplicating Ed.S. programs in two or three areas after a thorough study--now underway--to determine where this can be accomplished most efficiently.

Prior to 1972, the salary structure for Tennessee teachers did not recognize a person with an Ed.S. differently than the teacher with 45 quarter hours beyond the master's degree but without the Ed.S. While this was in effect, there seemed to be no urgency in the demand for this type program. But the regulations have been changed and Ed.S. recipients will be eligible for higher salaries. This development, plus the recent upgrading of certification requirements for administrators and supervisory personnel, will increase interest in Ed.S. programs. Cooperative planning, therefore, for their development should be accelerated.

DOCTOR OF EDUCATION DEGREES

The Doctor of Education (Ed.D.) degree represents the highest level of training in the teacher education field. It is the degree usually held by faculty in colleges which train teachers. Growing numbers of doctoral personnel are being employed as administrators and supervisors in school systems and in post-secondary institutions. Three State universities and George Peabody College have Ed.D. programs in several major education areas. UT Knoxville has offered the Ed D. for a number of years, while Memphis State began offering such programs in 1966 and East Tennessee State in 1971. Recent production is summarized in Table 16.

TABLE 16

ED.D. GRADUATES, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
Memphis State	8	5	10
UT Knoxville	47	52	63
East Tennessee*	—	—	—
Total	55	57	73

*Program began in 1971.

None of these universities has reached capacity enrollment in its doctoral program. They should be able to accommodate as many students as the market can utilize during the next decade when the rates of growth in public schools will be slow and enrollment in the institutions' teacher education programs should be decreasing.

ENGINEERING

Engineering is an expensive and important field of education in Tennessee. During the period of economic growth in late 1950 and the 1960's, there was heavy emphasis on technological advancement and engineers were in great demand. The decline in the aerospace and aircraft industries, and the emphasis on social and economic problems rather than technological ones, has reduced significantly the job market for engineers in the last several years. Demand for engineers is expected to rise gradually in the future, but Tennessee has more than enough capacity to meet the demand. Tennessee's universities have a heavy investment in faculty and facilities for engineering education, and they are not concentrated in one or two schools like some neighboring states.

Considerable change in the way engineers are trained is beginning to occur. In some institutions, the traditional four-year engineering curriculum is being

supplemented by a fifth year which leads to a master's degree as the first professional degree, rather than the bachelor's. New interests and needs are creating demands for engineers trained in areas other than the traditional engineering fields of civil, electrical, chemical, and mechanical. These traditional fields are being supplemented by programs in such areas as transportation engineering, environmental engineering, and biomedical engineering. The engineering colleges must continually reevaluate society's needs for people with engineering skills and remain flexible for curriculum changes.

BACCALAUREATE PROGRAMS

Six State universities have bachelor's degree programs in engineering: UT Knoxville, UT Chattanooga UT Nashville (in cooperation with Tennessee State). Memphis State, Tennessee State and Tennessee Tech. In addition, Vanderbilt University and Christian Brothers College have well-established engineering programs. Four State schools offer degrees in the several traditional engineering disciplines. UT Chattanooga and UT Nashville (in cooperation with TSU) offer degrees in one field only. Recent levels of degree production are shown in Table 17.

TABLE 17

GRADUATES OF BACHELOR'S DEGREE ENGINEERING PROGRAMS, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
UT Knoxville	350	453	377
UT Chattanooga	29	31	26
UT Nashville	—	—	7
Memphis State	90	124	100
Tennessee State	43	55	48
Tennessee Tech	236	306	269
Total Public	748	969	827
Christian Brothers	92	78	87
Vanderbilt Univ.	190	159	152
Total Private	282	237	239
Total All Institutions	1,030	1,206	1,066

Tennessee compares favorably with other states in number of engineers produced in relation to population. Degrees in engineering constituted almost eight per cent of the bachelor's degrees awarded in 1971. In addition to the engineering colleges, six universities offer bachelor's degrees in various types of industrial or engineering technologies: East Tennessee State, Memphis State, Middle Tennessee State, Tennessee State, Tennessee Tech and UT Martin.

Public engineering colleges vary greatly in size. Only three— UT Knoxville, Tennessee Tech and Memphis State—are large enough to operate an effective program on an efficient basis. UT Knoxville, Tennessee Tech and Tennessee State are the only institutions with accredited programs. Accreditation shou'd be the highest priority consideration at the non-accredited schools, because they cannot expect a large, efficient enrollment until this is accomplished.

It is evident that Tennessee has more than enough engineering schools to meet the needs of students and employers. The large number can be justified only if some remain limited in scope, concentrating on the demand for engineering training among adult part-time students. Those which should be limited to this function, until the demand for specialized engineers outgrows the capacity of existing specialized programs, include UT Chattanooga and the joint UT Nashville-TSU general engineering program. Only three schools —UT Knoxville, Tennessee Tech and Memphis State —should remain comprehensive in the sense that they offer specialized undergraduate and graduate programs.

MASTER'S PROGRAMS

As with bachelor's degrees, Tennessee compares favorably with other states in awarding engineering master's degrees. Recent levels of production are indicated in Table 18

TABLE 18

GRADUATES OF MASTER'S DEGREE ENGINEERING PROGRAMS, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
UT Knoxville	155	87	92
Memphis State	19	8	18
Tennessee Tech	30	27	49
Total Public	204	122	159
Vanderbilt Univ.	23	33	30
Total All Institutions	227	155	189

Many master's degree students are working engineers who enroll part-time as a means of keeping up-to-date and broadening their competency. Continuation of these programs is important to Tennessee industry and its working engineers, but no significant expansion of master's programs will be needed during the 1970's.

DOCTORAL PROGRAMS

The Ph.D. degree represents a highly specialized level of education in engineering. Those who earn it are engaged, primarily, in teaching and research. Two of Tennessee's public institutions and Vanderbilt University have such programs. UT Knoxville offers the Ph.D. in 10 separate engineering disciplines and Tennessee Tech began offering the doctorate in general engineering in 1971. Doctoral degree output is shown in Table 19.

TABLE 19

GRADUATES OF DOCTORAL PROGRAMS IN ENGINEERING, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
UT Knoxville	38	30	36
Vanderbilt	10	12	15
Total	48	42	51

Currently, neither the educational or industrial employment of Ph.D.'s is growing rapidly. Nationally, there has been a significant increase in doctoral engineering graduates in recent years, and the demand for such graduates in research and teaching is being met by the existing output The National Science Foundation projects an oversupply of engineering doctorates by 1980. These projections, however, are based on current societal utilization and the present economy. No additional doctoral programs will be needed during the 1970's, although there may be a need at UT Knoxville to develop new specialties in response to changing societal needs. A careful review of the new program at Tennessee Tech should be made in two or three years to determine if the demand justifies its continuation.

HOME ECONOMICS

All public universities in Tennessee, except UT Nashville, have bachelor's degree programs in home economics, as do several private institutions. There has been no significant change in recent years in the number of students who choose home economics as a major. The number of bachelor's degrees awarded by State universities in home economics and home economics education is shown in Table 20.

TABLE 20

BACHELOR'S DEGREE GRADUATES IN HOME ECONOMICS AND HOME ECONOMICS EDUCATION, 1969-71

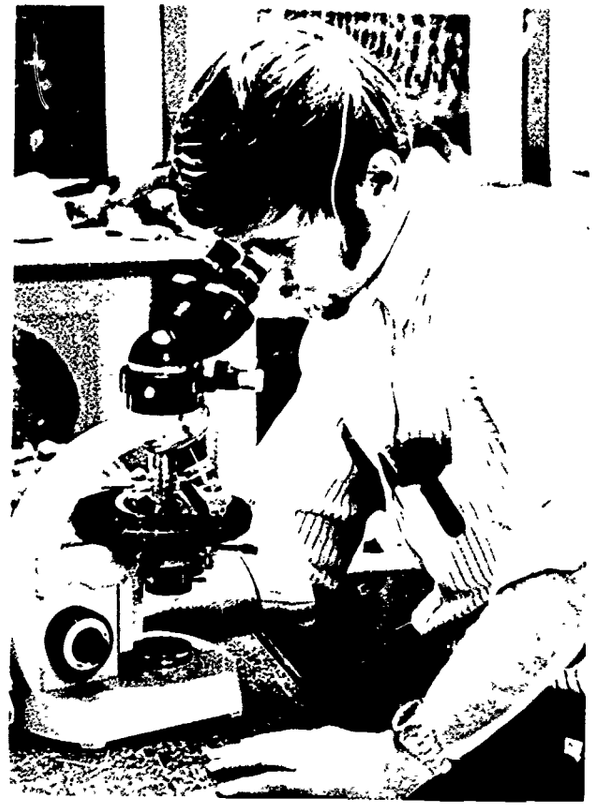
Institutions	*1968-69*	*1969-70*	*1970-71*
Austin Peay	.6	7	7
East Tennessee	0 (11)*	0 (15)	0 (10)
Memphis State	25 (0)	37 (0)	38 (0)
Middle Tennessee	3 (34)	8 (30)	16 (24)
Tennessee State	19 (8)	25 (4)	28 (5)
Tennessee Tech	23 (22)	10 (24)	20 (22)
UT Chattanooga	6 (2)	3 (2)	9 (3)
UT Knoxville	95 (63)	100 (64)	121 (42)
UT Martin	1 (33)	3 (34)	6 (36)
Total	178 (173)	193 (173)	245 (142)

*Home Economics Education totals in parentheses.

The largest program is at UT Knoxville, which produces about half of the home economics graduates. Some of the other programs are quite small. Two, UT Chattanooga and Austin Peay, average fewer than 10 graduates annually. Most universities offer few specific options and most students major in general home economics or home economics education. At Tennessee State, however, students may choose from five different majors within home economics, but only one of these has as many as 10 graduates a year.

Master's degrees in home economics are offered at UT Knoxville, Tennessee State and UT Martin. The Martin program is new, being started in 1971. While the UT Knoxville program is the only large one, Tennessee State during the last two years has produced about 10 graduates each year in home economics education (Table 21).

UT Knoxville has operated doctoral programs for several years in nutrition, food science, and home economics education, which was discontinued in 1971. Only four students earned doctorates in these programs during the past three years. The recently approved interdisciplinary option, however, is expected to be more popular. The planned program consolidation into one home economics major with options is expected to increase enrollment and degree production.



The microscope is an important instrument for the student of geology at University of Tennessee at Martin.

TABLE 21

GRADUATES OF MASTER'S DEGREE PROGRAMS IN HOME ECONOMICS AND HOME ECONOMICS EDUCATION, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
Tennessee State	(1)*	(10)	(9)
UT Knoxville	48 (1)	45 (6)	49 (4)
UT Martin (new program)			
Total	48 (2)	45 (16)	49 (13)

Home Economics Education totals in parentheses.

Job opportunities for home economics graduates are increasing very slowly, and Tennessee is producing more baccalaureate graduates than necessary to meet the job demand As a result, graduates must seek employment outside the field. However, there is one area of home economics in which a personnel shortage exists —nutrition and dietetics There is also a growing demand for people trained as teachers of pre school

children. Many of the courses needed for these persons are taught in home economics departments under the heading of "child development."

The existing graduate programs in home economics should be maintained but no new graduate programs will be needed unless enrollment exceeds the capacity of existing programs. This is unlikely in the next decade. Even though doctoral programs at UT Knoxville are small, the institution is regarded as having one of the leading home economics schools in the South, and doctoral training and research should be maintained in support of the broad undergraduate and master's curricula. Efforts should be made to attract more students into these doctoral programs.

Consideration should be given to phasing out those undergraduate home economics programs which produce too few graduates for efficient operation. UT Chattanooga proposed to phase out its program in 1970, but decided against this because of community concern. Arrangements for UT Knoxville to offer continuing education programs in home economics in the Chattanooga area could meet local needs, thus permitting the discontinuation of the UTC program. Austin Peay, the other institution which produces less than 10 graduates a year, should also consider phasing out its program. East Tennessee State, which is not producing any graduates in general home economics should restrict its degree program to the home economics education area. Tennessee State, which offers several separate bachelor's level majors in home economics with few graduates in each, should consolidate these specialty areas into a stronger and more efficient general major.

LAW

Tennessee has publicly-supported law schools at UT Knoxville and Memphis State. The only other accredited law school in Tennessee is at Vanderbilt University. An evening law program is provided in Nashville by the YMCA Law School, whose program is unaccredited. The three accredited schools graduate nearly 300 lawyers each year (Table 22). Among the 12 Southeastern states, only Florida and Louisiana produce more law graduates annually than Tennessee

TABLE 22

GRADUATES IN LAW, 1969-71

Institutions	*1968-69*	*1969-70*	*1970-71*
Memphis State	51	56	56
UT Knoxville	136	114	120
Vanderbilt Univ.	121	90	120
Total	308	260	296

UT Knoxville's enrollment has been expanded substantially in the last two years, and is near the average for publicly-supported law schools in the Southeast. Memphis State's enrollment is below average, but a planned increase of 100 students will raise it above the 1970 average. Despite good enrollment and accreditation, Memphis State and UT Knoxville law schools are not funded as well as other law schools in the region. Faculty salaries are lower and the student-faculty ratios are less favorable. Both schools should

Dietary research and service is a part of the program at University of Tennessee Medical Units in Memphis.

be better financed to compete for the best faculty and to offer the highest quality legal education.

Tennessee's supply of lawyers in relation to population is 122 per 100,000 people, somewhat lower than the national average of 160 per 100,000. These ratios have remained practically unchanged for the past 10 years. Among 12 Southeastern states, only three have fewer lawyers in relation to population than Tennessee. Most lawyers admitted to the Tennessee Bar are products of State law schools as shown in Table 23.

TABLE 23

LEGAL EDUCATION OF SUCCESSFUL APPLICANTS TO TENNESSEE BAR, 1971

Institutions	*Number*	*Per Cent*
Memphis State	47	17%
UT Knoxville	107	40%
Vanderbilt Univ.	60	22%
YMCA Law School	26	10%
Out-of-State Schools	31	11%
Total	271	100%

It is difficult to determine if Tennessee needs more lawyers, and if there is an unmet demand for legal services. It is possible, however, to determine the demand by students for a legal education. Table 24 shows the number of applicants and admissions to accredited law schools in Tennessee during the past four years, separated by resident and out-of-state applicants. Applications more than doubled during that period while admissions increased by 80 per cent. Most of the admissions increase was due to Memphis State's growth. Since the growth in applications exceeded admissions growth, a smaller proportion of applicants are now being admitted. In 1971, about 37 per cent of the applicants to Memphis State and UT Knoxville were admitted. However, nearly 70 per cent of the Tennessee applicants to those schools were enrolled.

While Tennessee student demand for legal education

TABLE 24

APPLICATIONS AND ADMISSIONS TO ACCREDITED TENNESSEE LAW SCHOOLS, 1969-72

Institutions	*1968-69*	*1969-70*	*1970-71*	*1971-72*
UT Knoxville Applicants				
In-State	118	150	167	226
Out-of-State	299	291	376	578
Total	417	441	543	804
UT Knoxville Admissions				
In-State	83	107	132	129
Out-of-State	105	106	138	67
Total	188	213	270	196
Memphis State Applicants				
In-State	118	175	79	324
Out-of-State	85	136	65	368
Total	203	311	344	692
Memphis State Admissions				
In-State	59	100	112	253
Out-of-State	16	48	28	110
Total	75	148	140	363
Vanderbilt Applicants*	517	638	725	1,088
Vanderbilt Admissions*	131	148	159	156
Total All Applicants	1,137	1,390	1,612	2,584
Total All Admissions	394	509	569	715

*In-State and Out-of-State separations for Vanderbilt not available.

is increasing, both State schools are able to accommodate most qualified applicants. Middle Tennessee is the only region without a publicly-supported law school. and it is more difficult for students in that area to go to law school than in East or West Tennessee. Presently, the unaccredited YMCA law school in Nashville accommodates some students, but there is concern that an accredited program should be available. Studies should be undertaken to assess the implications of continued high demand for increased enrollments at a time when both State schools are being strengthened to make them more competitive in the region. If a study reveals the need for more legal education opportunities. then there should be a determination on the basis of costs and other factors whether the YMCA Law School should become the basis for a new public law school in Middle Tennessee, whether another day as well as evening school should be established in the Middle Tennessee area, or whether the two existing State law schools in Tennessee should be expanded to meet the demand.

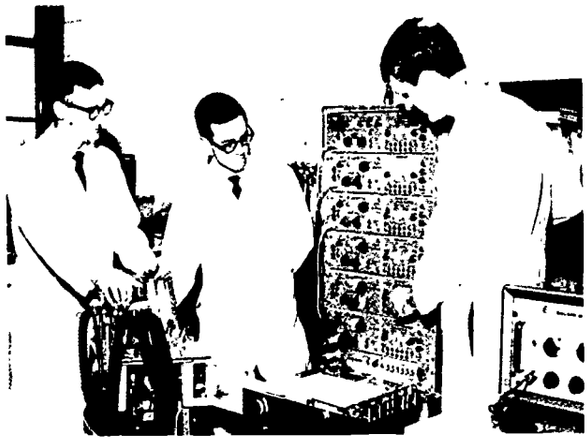
It should be a first priority of the State to provide adequate funding of the existing law schools before any new or expanded programs are initiated.

MEDICINE, DENTISTRY AND PHARMACY

The medical, dental and pharmacy professions are of central importance in providing Tennessee with good health care. They are also professions for which education is very expensive. Thus, careful planning of programs is essential. All State-supported educational programs for these professions are part of the Medical Units of University of Tennessee at Memphis. In all professions, there is not only the issue of total supply available to Tennessee. but also the problem of how personnel are distributed across the State. Physicians, dentists and pharmacists are more plentiful in some areas than others being concentrated in cities and large towns. The State's higher education system has relatively little control over their distribution, since the demand is ordinarily sufficient for them to find adequate employment in whatever location they choose. Other factors—such as type of practice arrangements climate, schools, cultural opportunities, and level of the economy—influence choice of location. What the educational system can do is provide a high quality education to enough students to meet the State's overall needs, and provide an opportunity to as many interested and qualified Tennesseans as possible.

MEDICINE

Tennessee has slightly more than three-fourths as many physicians in relation to population as the national average, and it ranks 30th among the 50 states. Yet Tennessee produces, through the UT College of Medicine and two private schools at Vanderbilt University and Meharry Medical College, more physicians each year than any other Southeastern state. There are only nine states in the nation where medical schools produce more graduates than does Tennessee. But only a third of the graduates remain in the State to practice. Loss of the other two-thirds is expensive, and not nearly enough physicians come to Tennessee



A faculty member and two graduate students discuss the operation of equipment at the UT Medical Units.

from other states to make up for this loss. Those who do practice in Tennessee are concentrated in the more highly-populated areas, with many of the most rural communities having no physicians. In addition to the uneven distribution favoring the cities, the regional supply is slightly less favorable in East Tennessee than in Middle or West Tennessee. Thus, it is evident that Tennessee's physician supply problem relates more to retention of those doctors educated in the State, and to their distribution, than to the number produced.

UT College of Medicine admits about 200 students each year, and nearly all are Tennesseans. Vanderbilt and Meharry, together, admit about 165 students, and usually about 20 per cent at Vanderbilt and 10 per cent at Meharry are Tennessee students. There are only about 40 to 60 well qualified Tennesseans each year who are unable to gain admission to a medical school, and all three schools are preparing to increase their enrollment.

One factor that strongly influences a physician's location for practice is the place of his internship and residency after graduation. East Tennessee, with the fewest physicians, has the fewest internship and residency opportunities to attract young physicians. The Johnson City-Bristol-Kingsport area has none.

To retain more medical graduates and to orient them more toward East Tennessee, the State has authorized the establishment of three clinical Medical education centers: one in Knoxville which is already in operation and additional centers are being planned in the Tri-Cities and Chattanooga. A fourth center should be established at Jackson at some time in the future. These should be affiliated with UT College of Medicine and, if possible, with other schools. Affiliation is important to make them more attractive to interns and residents and to coordinate the total postgraduation training program. In addition to training at that level, the centers should also provide the final year or so of clinical training for medical students, and for training in allied health areas. Cooperative planning should be initiated by the three medical schools to utilize these and smaller centers in their clinical training. They should also place greater emphasis on preparation for family practice.

Steps are being taken to facilitate increased admission of Tennesseans to the three schools. UT College of Medicine is being expanded to admit 40 additional Tennessee students each year, and it should continue to limit its out-of-state students. The State is also contracting with Vanderbilt and Meharry to support the admission of 10 additional Tennesseans annually at each of these schools to provide additional opportunities for qualified Tennesseans to study medicine.

At present, it does not appear desirable to establish an additional medical school. The top priority in use of State resources in medical education should be placed in support for the UT College of Medicine to the point that it is as well equipped and staffed as other Southern medical schools.

DENTISTRY

The State's supply of dentists, 39 per 100,000 people, is considerably less than the national average of 47 per 100,000. Almost 60 per cent of the Tennessee dentists practice in the four metropolitan areas, although those counties contain only 43 per cent of the population. Those areas having the least favorable dentist-population ratios are Upper Cumberland, South Central and Northwest Tennessee. As in medicine, the rural Tennessean has poorer access to dentists than does the urban citizen. The distribution problem is as great as the problem of total supply.

The two dental schools in the State graduate more than 150 dentists a year but only about 80 or 90 new dentists are licensed to practice in Tennessee each year. Retirement, out migration, and death of practitioners has meant that only about 17 additional dentists have been added to the health force each year during the past decade. The problem of retention of dentists trained in Tennessee is just as severe as the problem of retention of doctors.

There are two dental schools in the State. UT College of Dentistry in Memphis graduates about 125 annually, and Meharry Dental College in Nashville produces about 30 each year.

About a fourth of the UT dental students are from Arkansas and Mississippi. Neither state has a dental school and both contract with the University, through the Southern Regional Education Board, to support the enrollment of their dental students. Practically all

other dental students at UT are Tennesseans. The University should continue to accommodate Arkansas and Mississippi students with an adequate level of financial support from those states as long as it does not have to refuse qualified Tennessee applicants.

The UT dental school is increasing its entering class by 20 per cent and this should accommodate nearly all qualified Tennesseans, although the retention and distribution problem will not be solved by this expansion.

The UT College of Dentistry is in serious danger of losing its accreditation, due principally to less than adequate financial support which results in a shortage of faculty and facilities. Increased support and new facilities are being provided as soon as possible to maintain an accredited, high quality program.

PHARMACY

Tennessee's supply of pharmacists is good in relation to that of other states, and it has maintained this standing for several years. There are 62 pharmacists per 100,000 people in Tennessee and 64 per 100,000 in the nation. The urban areas are somewhat better supplied than the rural sections, but this disparity is not as pronounced as with medicine and dentistry. It is not an unreasonable disparity when one considers that pharmacists are likely to be more numerous where there are more physicians and dentists prescribing drugs Only about 30 per cent of the new pharmacists licensed in Tennessee each year are required to replace those who discontinue practice and, as a result, the supply of practitioners is increasing.

The only pharmacy school is at UT Medical Units. The three-year program graduates about 90 pharmacists each year. There is no need, presently, to plan for an additional pharmacy school, nor for major expansion of the existing facility

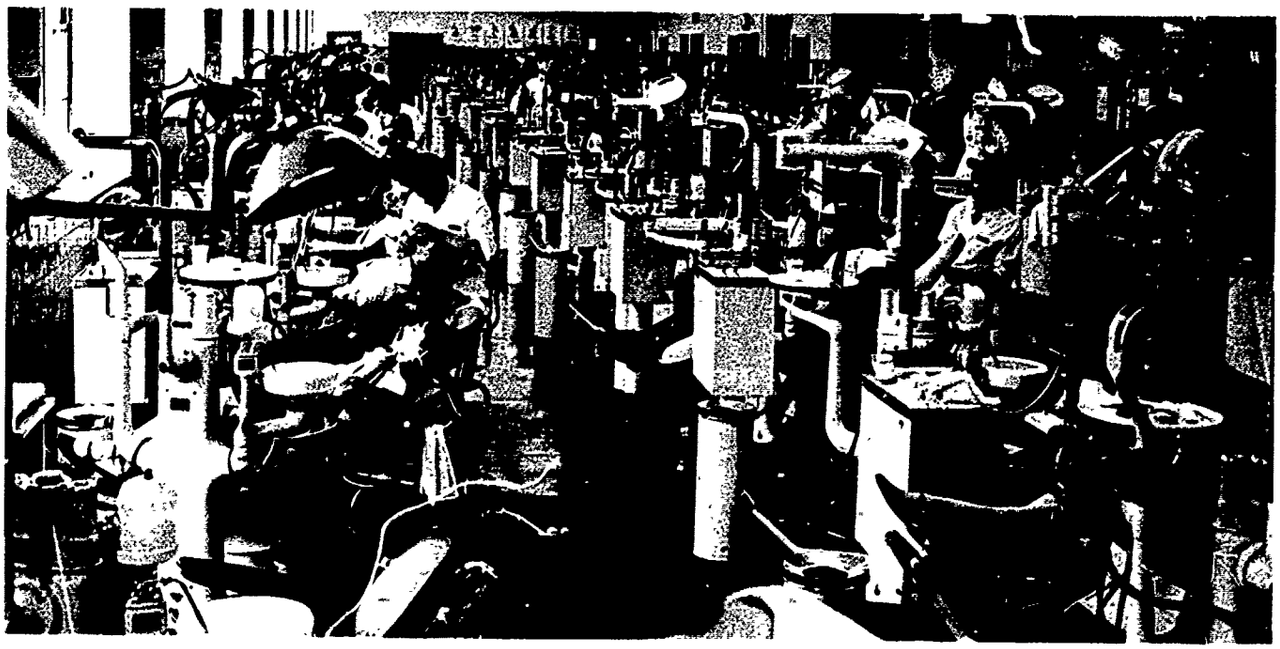
NURSING

The education of registered nurses has experienced rapid growth in Tennessee public institutions in the past few years. The growth has been necessary because there has been a marked shortage of nurses in the State; because of a reduction in hospital-operated nursing schools; and because nursing is an attractive and rewarding field.

In 1966, there were 6,628 registered nurses in Tennessee or 175 for every 100,000 people. That compared with a nation average of 313 to 100,000. At that time, there were 19 nursing schools in Tennessee which enrolled 2,029 students. Eleven schools were hospital-operated and giving a three-year diploma; four were two-year associate degree programs; and four were bachelor's degree programs. By 1969, five new associate degree programs had been started; the Tennessee ratio had risen to 212 per 100,000; and 2 508 students were enrolled (Table 25).

Since 1969, three hospital schools were phased out and another is terminating. This is consistent with a national trend, since nursing education is quite expensive and hospitals find it difficult to finance. But four additional collegiate programs had been added, and enrollment expanded to 3,567. More graduates also are being produced.

Table 26 shows all undergraduate nursing programs presently operated (hospital and collegiate); dates they began, if since 1962; and their enrollment and production for the last four years. Most of the recent additions have been two-year associate degree programs. The State's first joint nursing program was initiated in the fall of 1972. Middle Tennessee State, which had an associate degree program for some time, combined resources with Motlow State Community



Chairside techniques are practiced by students in the College of Dentistry at UT Medical Units in Memphis.

TABLE 25

ENROLLMENTS AND GRADUATES OF TENNESSEE NURSING PROGRAMS, 1969-72, BY DEGREES

Degrees	1968-69 Enrollment	1968-69 Graduates	1969-70 Enrollment	1969-70 Graduates	1970-71 Enrollment	1970-71 Graduates	1972 Enrollment
Associate	534	122	754	220	1,019	318	1,495
Diploma	1,021	324	1,056	302	1,070	233	1,230
Bachelor's	611	128	698	141	807	147	932
Total	2,166	574	2,508	663	2,896	698	3,657

TABLE 26

ENROLLMENTS AND GRADUATES OF TENNESSEE NURSING PROGRAMS, 1969-72, BY INSTITUTION

Institutions (Associate)	Programs Started Since 1962	Enrollments 1968-69	Enrollments 1969-70	Enrollments 1970-71	Enrollments 1971-72	Graduates 1968-69	Graduates 1969-70	Graduates 1970-71
Austin Peay	1970	—	—	29	55	—	—	—
Belmont	1972	—	—	—	—	—	—	—
Cleveland	1967	60	76	83	141	21	17	31
Columbia	1967	68	90	95	150	25	30	32
East Tennessee	1968	24	61	85	112	—	18	28
Memphis State	1967	63	88	115	182	13	23	47
Middle Tennessee	1963	56	69	86	80	18	23	28
Southern Missionary	1965	100	87	68	155	30	40	26
Tennessee State	1966	66	1[illegible]	160	218	7	3	16
Union	1962	59	5[illegible]	65	91	18	16	22
UT Martin	1970	—	—	102	120	—	—	—
UT Nashville	1968	67	116	131	191	—	41	48
Total		534	754	1,019	1,495	132	211	278
(Diploma)								
Baptist—Nashville		52	18	—	—	31	17	—
Baptist—Memphis		174	186	204	223	39	41	42
Baroness Erlanger		130	142	118	159	52	39	38
East Tennessee Baptist		81	83	85	100	18	14	19
Fort Sanders		100	96	100	100	28	23	28
Methodist		132	205	248	310	31	34	40
Nashville Metro		32	16	—	—	18	16	—
St. Joseph		74	68	74	98	18	23	16
St. Mary		87	108	139	142	27	20	29
St. Thomas		62	22	—	—	36	22	—
UTMRCH		97	112	102	98	26	53	21
Total		1,021	1,056	1,070	1,230	324	302	233
(Bachelor)								
East Tennessee		124	124	152	204	13	17	17
Southern Missionary		111	163	143	154	30	25	34
UT Medical Units		139	139	138	148	45	48	44
UT Knoxville	1972	—	—	—	—	—	—	—
Vanderbilt		237	272	374	426	40	51	52
Total		611	698	807	932	128	141	147
Grand Total		2,166	2,508	2,896	3,657	584	654	658

College and students are able to study nursing at either school.

There are still too few baccalaureate degree nursing programs. Even though all registered nurses hold the same license, many hospitals desire those with the B.S. and graduate degrees for supervisory positions. Two baccalaureate programs have been approved by the Higher Education Commission. One at UT Knoxville began accepting students in the fall of 1972 The other at UT Chattanooga does not have a starting date, but it should be initiated as soon as possible.

One of the most serious problems in training nurses in Tennessee is finding qualified faculty with master's degrees The only graduate nursing program in the State is at Vanderbilt, although the Commission has approved a program for UT Medical Units which will begin in 1973. UT Knoxville has long range plans to introduce graduate work also. Vanderbilt is serving the

Student learns the technique of checking a patient's blood pressure at the College of Nursing in Memphis.

State well as its only producer of master's degree nurses currently. It has been assisted financially since 1967 by a State-supported contract to permit the admission of additional Tennessee students. In addition, the State operates a nursing loan-scholarship program to provide financial assistance to Tennesseans who desire to study nursing at the graduate level. To date 50 graduate nursing students have been assisted through this program.

It may not be necessary to begin additional nursing programs for the next several years. With the existing programs operating nearer capacity, it should be possible for Tennessee to equal the present national ratio about 1980. (See Table 27.) There is, however, a shortage in many rural areas and small towns. If it appears that this shortage will continue and there are interested students who cannot afford to move for nursing training, a joint program model—such as that being used by Motlow State—should be utilized. That approach should make it much easier to cut back or discontinue a program at one of the cooperating schools than would be the case if both programs were independent.

It is possible that the production of associate degree nurses is becoming excessive in relation to the production of bachelor's degree nurses, particularly in Middle Tennessee. Therefore, consideration should be given to elevation of an associate program at Middle Tennessee State or UT Nashville to the bachelor's level.

Several State-supported nursing schools are not yet accredited. Most of these are so new that they have only recently been eligible to apply for accreditation. The only unaccredited programs which are more than four years old are the associate degree programs at Tennessee State, Cleveland State, and Columbia State. A very high priority should be placed on the accreditation of these and the newer schools as well.

Nursing training has great appeal to the public and the demand to institute new programs is often quite strong. But the training is expensive and several existing programs are far from capacity enrollment. Furthermore, projections indicate that, as a result of the recent program additions, the shortage is likely to be overcome in seven or eight years. Instead of instituting new programs, the emphasis should be on accreditation of existing programs; increasing enroll-

TABLE 27

PROJECTIONS OF ACTIVE REGISTERED NURSES IN TENNESSEE TO 1985

Years (Actual)	*Active RNs*	*RNs Per 100,000 Pop.*	*5% Yearly Attrition*	*Total Graduates Existing Programs*	*Remain in State (85% of Col. 4)*
1966	6,628	171		432	
1967	6,906	175		471	
1968	7,847	197		512	
1969	8,460	212	423	574	488
(Projected)					
1970	8,525	217	426	663	564
1971	8,663		433	698	593
1972	8,823		441	835	710
1973	9,092		455	930	791
1974	9,428		471	1,065	905
1975	9,862	241	493	1,155	982
1976	10,351		518	1,235	1,050
1977	10,883		544	1,295	1,101
1978	11,440		572	1,345	1,143
1979	12,011		601	1,390	1,182
1980	12,592	296	630	1,435	1,220
1981	13,182		659	1,470	1,250
1982	13,773		689	1,475	1,254
1983	14,338		717	1,475	1,254
1984	14,875		744	1,475	1,254
1985	15,385	346	769	1,475	1,254

ment in existing programs to capacity, getting authorized, but not yet initiated, programs underway, particularly the master's programs at UT Medical Units; and improving the quality of all training so that graduates will be well-equipped to work in the complex health profession which nursing is today

TWO-YEAR OCCUPATIONAL PROGRAMS

Post-secondary educational institutions of the State provide training for persons who wish to enter an occupation requiring less than four years of post-high school study. Some programs are available to persons who do not have a high school diploma or the equivalent and these are not usually considered to involve college-level instruction. They are offered in the State's system of area vocational-technical schools. Other occupational programs do require a high school education for admission, and in these the instruction is at the college level with completion typically requiring two years for an associate degree. These are available in community colleges and technical institutes. The senior colleges also offer a few selected associate degree programs (Table 28).

The technical institutes were originally planned to offer only engineering and science-related programs, such as chemical engineering technology, mechanical engineering technology, and computer programming. These programs also include supportive general studies but most of the curriculum is devoted to technical courses. In addition to these technical fields, they have developed some programs in business occupations such as accounting and business data processing. Recently they have also spread out into the service occupations like motel and restaurant management. The community college occupational programs have been broader, covering most occupational areas. They include business occupations such as secretarial science and agricultural business, health occupations such as nursing and inhalation therapy, and public service occupations such as law enforcement and child care. There is considerable overlap between the occupational offerings of community colleges and those of technical institutes. In electronics, accounting, and business data processing, for example, the programs offered in technical institutes are quite similar to those offered in community colleges. Approximately half the enrollment at the State Technical Institute in Memphis has been in computer or data processing programs, an area of training also offered by most community colleges. Furthermore, six community colleges operate engineering technology programs, an area considered to be a principal part of the technical institute's mission.

All technical institute students are enrolled in occupational programs designed to enable them to enter employment upon completion, although many transfer into senior institutions, applying part of the technical institute credits toward a bachelor's degree. Although the majority of community college students are enrolled in programs designed primarily for transfer, about 40 percent complete occupational programs. Furthermore, at least two of the area vocational-technical schools have established programs leading to associate degrees. Because of the increasing overlap in the functions and programs of the technical institutes, community colleges, and vocational-technical schools, there needs to be increased coordination among the three systems, especially in those communities where two or more of these institutions exist.

The market for graduates in various fields is changing and institutions must make their investments in faculty and facilities carefully so as to permit program changes with fluctuations in the employment market. Most business and office-related occupations, such as secretarial work and accounting, manufacturing, and marketing, will continue to have demand for two-year graduates. Other programs, particularly in data processing and computer fields, may already be turning out more students than are able to find related employment. The colleges should not initiate new programs in these fields without clear evidence of demand for graduates. Care should be taken that business occupational programs are not so highly specialized that graduates will have a narrow range of skills for entry business employers.

Engineering technologies are being offered in a variety of specialties, such as electrical, mechanical, and civil, and more of the enrollment in these areas is in technical institutes than in community colleges. As the employment market for engineers declined recently, so has the need for their assistants, the technologists. The future for graduates in these fields is not nearly as bright as it was in the mid-1960's when Tennessee's two-year institutions were planned. Some engineering technology programs in community colleges have already been discontinued as enrollment decreased, and plans to maintain the others and to initiate new ones must be considered very carefully. On the other hand, institutions must not over-react to the faltering job market to the point that they fail to utilize unique opportunities for training in a particular engineering technology for which the demand is good. An example would be a cooperative program between Oak Ridge

Vocational-technical students learn in a cooperative computer program at Jackson State Community College.

TABLE 28

ASSOCIATE DEGREE OCCUPATIONAL PROGRAMS AVAILABLE IN PUBLIC COLLEGES, UNIVERSITIES AND TECHNICAL INSTITUTES

Programs	*Universities*	*Community Colleges*	*Technical Institutes*
Business and Commerce			
General Business and Commerce		Cleveland, Columbia, Dyersburg, Motlow, Roane, Volunteer	
Accounting Technology		Motlow, Cleveland	Chattanooga, Memphis
Marketing, Distrib., Bus., [illegible] c.		Cleveland, Columbia, Jackson, Motlow	
Secretarial		Cleveland, Columbia, Dyersburg, Jackson, Motlow, Roane, Volunteer, Walters	
Data Processing			
General Data Processing		Cleveland, Columbia, Dyersburg, Jackson, Motlow, Walters	Nashville, Chattanooga, [illegible]
Health Services			
Dental Hygiene	East Tennessee		
Medical Laboratory Assistant		Columbia, Jackson	
Radiologic Technology		Jackson	
Nursing, RN	Austin Peay, ETSU, Memphis State, Middle Tennessee, Tennessee State, UT Martin, UT Nashville	Cleveland, Columbia	Chattanooga
Inhalation Therapy		Cleveland, Jackson	
Psychiatric Technology		Columbia	
Mechanical and Engineering			
Architectural Drafting		Cleveland, Walters	
Chemical Technology			Memphis
			Nashville, Chattanooga, Memphis
Civil Technology		Columbia	
Electronics & Machine Technology		Columbia, Dyersburg, Motlow, Roane, Walters	Memphis, Chattanooga
			Nashville, Chattanooga, Memphis
Industrial Technology		Jackson, Roane, Walters	Nashville
Instrumentation Technology			Memphis, Chattanooga
Mechanical Technology			Nashville, Memphis, Chattanooga
Nuclear Technology			Chattanooga
Construction & Bldg. Technology		Cleveland, Columbia	
Aerospace Technology		Motlow	
Natural Science			
Agriculture Technology		Columbia, Dyersburg, Jackson, Walters	
Food Services Technology		Volunteer	
Sanitation & Public Health		Walters	Chattanooga
Public Service Related			
Education Technology		Columbia	
Law Enforcement	ETSU, Middle Tennessee	Cleveland, Dyersburg, Walters	
Child Care		Walters	

Hospital experiences are provided students of nursing at Cleveland State Community College.

facilities and Roane State Community College for training nuclear technologists.

There are agri-business occupational programs in four community colleges. These train people to work in a variety of agricultural businesses and the curriculum includes as much business training as agriculture. While employment opportunities in agriculture as such are expected to decline, there should continue to be fairly stable employment in businesses closely related to farming. As long as enrollments in agri-business programs hold up, they should be maintained.

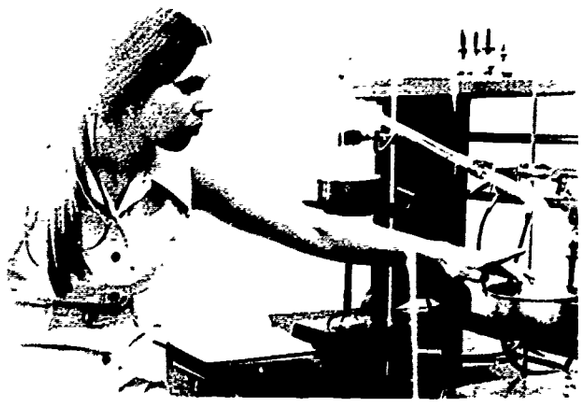
In fields allied to health and medicine, there are areas of great need for two-year trained people, and the institutions already are active in some areas. Table 28 shows what health occupation programs at the associate degree level are offered. The Higher Education Commission and State Department of Public Health have conducted studies resulting in recommendations concerning these fields. A study of nursing education and its cost was done in 1969, and one on other allied health fields was conducted in 1971-72. Since the nursing study, three new associate degree programs have been initiated: two in senior institutions and one at Motlow State Community College which is operated jointly with Middle Tennessee State. The situation in nursing education is discussed more fully in a separate section.

The allied health study has identified a number of areas of health care in which there is need for people trained at the two-year occupational level. Among them are medical laboratory technicians, dental hygienists, medical records technicians, inhalation therapists, and dietary technicians.

The Higher Education Commission has favored the policy of establishing associate degree programs in community colleges rather than at universities, and this should be followed with new allied health programs to the extent possible. Shelby State Community College is well-located for facilities and personnel needed in health training, and Volunteer State Community College is close enough to Nashville medical facilities so that some programs might easily be established there. However, the "two-year programs at two-year schools" policy should not rule out establishment of these health programs at four-year schools when economy or other considerations make it advisable. For example, the need for more black health workers suggests that Tennessee State, with the largest black enrollment, should look toward more health training, even at the two-year level.

Programs to train public service workers are operating at community colleges; and in such areas as law enforcement there has been a burst of interest in college-level training in the last few years. There are now five associate degree programs in the general area of law enforcement, three in community colleges and two in senior colleges. Law enforcement education at the two-year level is now available in all parts of the State and no more programs should be established

Experience in the laboratory supplements classroom discussions at Dyersburg State Community College.



until there is evidence of demand beyond the present capacity. It is likely that need will develop for occupational level training for additional public service fields, such as aides for librarians and teachers, recreation workers and the like However, these roles are only emerging and training should be developed as job opportunities and job requirements are developed by public service agencies.

SOCIAL WORK

For some years only those holding a master's or doctoral degree in social work were considered professional social workers and the demand far exceeded the supply. Very few institutions offered an undergraduate major in this area. Those who entered graduate school came from undergraduate majors in sociology, psychology and related fields. Recently, the social work profession began to encourage undergraduate training in social work, recognizing that many tasks can be handled by bachelor's graduates working under supervision. Furthermore, hospitals, departments of public welfare and other social agencies often do not have the budgets to employ master's degree personnel in all social service staff positions.

Headquarters of the UT Graduate School of Social Work has been in Nashville for many years, and branches are now located in Knoxville and Memphis. The school awarded 104 master's degrees in 1972, and it is expected to increase the number to 115-125 per year in the near future. It is the second largest publicly-supported school of social work in the Southeast. The one at Florida State University is larger. Several Southeastern states have private schools, but Tennessee still ranks fourth among Southeastern states in annual production of master's level social workers.

Six Tennessee public universities offer bachelor's degrees in social work areas, and all except Memphis State where the program is new—are producing a reasonable number of graduates each year (Table 29).

TABLE 29

GRADUATES OF BACHELOR'S DEGREE PROGRAMS IN SOCIAL WORK, 1969-71

Institutions	*1969*	*1970*	*1971*
East Tennessee	44	54	56
Memphis State	—	3	3
Tennessee State	22	24	34
UT Chattanooga	17	14	12
UT Knoxville*	—	—	—
UT Martin*	—	—	—
Total	83	95	105

*New programs.

The combined production of these bachelor's programs exceeds that of all Southeastern states except for Louisiana and Florida, and there is room in all Tennessee programs for additional enrollment.

The employment picture for social work graduates at both levels is good, and it is improving for those with bachelor's degrees. Training programs at both levels are available in all parts of the State, with capacity for increased undergraduate enrollment. The UT graduate program has twice as many applicants as it can accept, but more than 30 per cent of those enrolled are non-residents. Thus, there is space to accommodate more Tennesseans if necessary. Federal and State stipends for graduate study in social work has been reduced in the last year, and this may have an adverse effect on applications in the short run. Since the UT program operates in Nashville, Memphis and Knoxville, it should be possible to expand the master's program at East Tennessee State which is related to upper East Tennessee needs. Beyond that, no additional programs will be required in the foreseeable future. Since students from undergraduate programs are now graduating with most of the basic social work training required for practice, graduate programs may need to be revised to include a preparation for administrative work in this field.

FACULTIES IN PUBLIC HIGHER EDUCATION

SUMMARY

On the average, Tennessee's public college faculty teach more students and are paid slightly less than those in other Southern states.

The 5,489 teaching faculty in the State's institutions have a student-faculty ratio of 22.5-to-1, while the national average is 19-to-1. Statistics also show that 46 per cent of the faculty hold a doctoral degree, and this is one per cent less than those in the nearby states. Since 1957, the number of faculty having a Ph.D. has risen by 17 per cent. By rank, Tennessee's faculty include 18 per cent professors, 21 per cent associate professors, 33 per cent assistant professors, and 28 per cent instructors.

There were 285 black faculty in State institutions in 1971-72. Excluding Tennessee State University faculty, black faculty at other State institutions increased from 15 in 1968-69 to 63 in 1971-72. Discounting those at TSU, the black faculty hold lower academic rank than do white faculty.

Since competition for black faculty is high throughout the nation, more blacks must be encouraged to attend graduate schools, and State institutions must recruit more aggressively among the relatively few blacks available for faculty positions.

Twenty-three per cent of Tennessee's faculty are women; the nationwide average is greater than 25 per cent. The women also fall disproportionately into the junior ranks. One reason is that few women studied for advanced degrees. Another is that the turnover rate was greater due to marriage and motherhood. Both factors may be less significant in the future, and the institutions are urged to recruit more women as faculty and provide them equal opportunity for advancement.

The average faculty salary was $12,156 in 1971, and this was in the lower half for the Southern states. Maryland had the highest average ($13,762), and Mississippi the lowest ($10,556). By rank, the State's faculty fared no better. Tennessee professors, associate professors and assistant professors ranked ninth among the 13 Southern states, and the instructors placed tenth.

There is also a male-female differential. During 1971-72, the average salary of male faculty was 28 per cent more than for female faculty. In addition, there were differences in the individual faculty ranks. The same difference prevailed with black faculty; lower on average salary and lower by rank.

The faculty employed in Tennessee's public institutions are paid less than those in neighboring states. The State should support its institutions well enough so that faculty salaries can be at least as good as the average among the Southern states, and so that inequities in salaries to women and blacks can be erased.

Small classes at Columbia State Community College offer students and faculty more opportunity for discussion.

Students and faculty are the heart of the educational process. The main purpose of higher education is to bring them together in an effective manner so that the students obtain the maximum benefit from the relationship.

The characteristics and conditions of work for the faculty in public institutions are reviewed in this chapter. A major study of faculty workload, and the manner by which institutions determine the effectiveness of their faculty, is being conducted by the Commission at present, and the results will be available in the near future.

Discussion of faculty work is presented largely in terms of averages and ratios, but they do not reveal the variability of faculty activities and salaries, or anything concerning how well they are doing their jobs. There are large differences in the activities of the faculty. Some conform to the popular stereotype of the teacher standing before the class and lecturing. But at any one point in time, a faculty member may be carrying on individual conferences with students, leading students on a field trip, observing them as they lead a class discussion, or demonstrating a scientific experiment to the class. Some faculty spend most of their time teaching or preparing to teach. Others educate through public service activities, or, through research, contribute to improving the economy of the State. No profile can adequately capture the variety of faculty activity, although the following information can provide an overview of this important group in higher education.

FACULTY CHARACTERISTICS

Tennessee employs 5,489 teaching faculty in its colleges and universities; some are full-time and others part-time. Both groups comprise a total of 4,425 full-time-equated faculty. This results in a student-faculty ratio of 22.5 to 1. Tennessee's ratio is somewhat higher than the national average of 19 to 1, and this has not changed appreciably in the past few years. Faculties have grown, but only at the same rate that enrollment has increased. About 46 per cent of the faculty in Tennessee's public institutions hold a doctoral degree; a percentage which is close to that of the neighboring states (47%). Tennessee has advanced greatly during the past 15 years in terms of faculty qualifications. In 1957, only 29 per cent held doctoral degrees, compared to 42 per cent at all public universities and 32 per cent at all public colleges in 1958.

RANK STRUCTURE AT DIFFERENT INSTITUTIONS

Of the 5,489 faculty employed in Tennessee institutions, 19 per cent are professors, 21 per cent are associate professors, 33 per cent assistant professors, and 28 per cent are instructors. There is some variation in the proportion of faculty with the different ranks at the various State institutions (Table 30).

There are no full professors in community colleges, and a large majority of their faculty are instructors. This is because community colleges offer relatively few courses requiring faculty who would be eligible for higher ranks. A large percentage of the UT Martin and UT Chattanooga faculty are assistant professors and few are full professors. This is probably due to the

TABLE 30

DISTRIBUTION OF FACULTY BY RANK AND TYPE OF INSTITUTION*

Rank	Memphis State	UT Knoxville	Community Colleges	Regents' Univ. (Less MSU)	UT Martin and UTC	All
Professor	22%	25%	——	22%	9%	19%
Asso. Prof.	25%	23%	3%	24%	18%	21%
Asst. Prof.	29%	31%	27%	26%	45%	33%
Instructor	24%	24%	70%	18%	28%	28%

*UT Nashville excluded because it is relatively new, and it utilizes many part-time faculty.

institutions' rapid growth, and the number of faculty members who have been employed only a short time

BLACK FACULTY IN PUBLIC HIGHER EDUCATION

In 1968-69, there were 267 full-time-equated black faculty members in Tennessee's public institutions, and 285 in 1971-72. This small expansion must be viewed against the fact that black faculty at Tennessee State University decreased by 30 in the same period. Discounting TSU, there was a fourfold increase—from 15 to 63—in black faculty at State institutions. This represents an increase from .4 per cent to 1.3 per cent Again disregarding TSU, the blacks at these institutions held lower academic rank than did the white faculty. While only .2 per cent of the full professors were black. 1.5 per cent of the instructors were black One reason for this disparity is the recency of their employment at predominantly white institutions; few have been employed long enough to receive promotion to higher ranks.

Black faculty are in short supply in practically all disciplines. All institutions, except Tennessee State, are striving to increase the black representation on their faculties, but the competition for them is high throughout the nation and progress in this effort is slow.

As more black students enroll in colleges and more pursue advanced degrees, the supply should be greater. But it is likely to be a number of years before there are enough black faculty to bring their proportion on faculties close to the proportion of blacks in the student bodies. Blacks must be encouraged to enroll in graduate schools and Tennessee institutions must recruit aggressively among the relatively few available for employment as faculty.

WOMEN IN HIGHER EDUCATION

Only 23 per cent of the faculty in the State's institutions are women. Tennessee is by no means unique in this respect, since the nationwide ratio of males to females on college faculties is greater than three-to-one. The following table shows the distribution of male and female faculty in the four academic ranks, and the percentage of females in each rank. It is obvious that women fall disproportionately into the junior ranks. While they constitute only 23 per cent of all faculty, they make up 43 per cent of the instructors (Table 31).

The low percentage of female faculty and their low rank, in part, results from the fact that relatively few

TABLE 31

MALE AND FEMALE FACULTY HEADCOUNT, 1971-72

Rank	Male	Female	Total	Percentage Of Females
Professor	924	94	1,018	9%
Asso. Prof.	988	154	1,142	13%
Asst. Prof.	1,450	349	1,799	19%
Instructor	878	652	1,530	43%
Total	4,240	1,249	5,489	23%

women studied for advanced degrees. Another reason is that the turnover rate of female faculty was greater because of marriage and motherhood; often resulting in temporary, or permanent, discontinuance of work. Both factors should be less significant in the future, since more women are earning advanced degrees and more are continuing to teach after marriage. The institutions should recruit more women for their faculties and provide them an equal opportunity for advancement in rank.

SALARY COMPARISONS

The average faculty salary in Tennessee's public institutions was $12,156 in 1971-72, which was in the lower half for the Southern states. The highest average salary in the South was $13,762 (Maryland), and the lowest was $10,556 in Mississippi. When the various academic ranks are considered separately, Tennessee's faculty do not fare any better. The average salary of a full professor in the State ranked ninth among the 13 Southern states. Those of associate and assistant professors also ranked ninth, while that of an instructor was tenth.

There is also a male-female salary differential. In 1971-72, the average salary of full-time male faculty was 28 per cent more than that of female faculty. This disparity reflects the proportionately-greater number of males in the upper academic ranks, which results in an average substantially in favor of the males. However, even within the individual faculty ranks, there is a male-female difference. There is also a difference between salaries paid to blacks and whites. At all ranks, the blacks' salaries were lower. Possible reasons

TABLE 32

AVERAGE SALARY OF FULL-TIME FACULTY BY SEX, RACE AND RANK, 1971

Rank	*Male*	*Female*	*Blacks*	*Tennessee Total*	*Average for All Southern States*
Professor	$16,474	$14,948	$13,657	$16,340	$17,640
Associate Professor	13,519	12,290	11,805	13,351	13,755
Assistant Professor	11,338	10,254	10,500	11,100	11,429
Instructor	8,732	8,185	8,147	8,464	8,831
Average Salary	$12,795	$ 9,999	$10,820	$12,156	$12,325

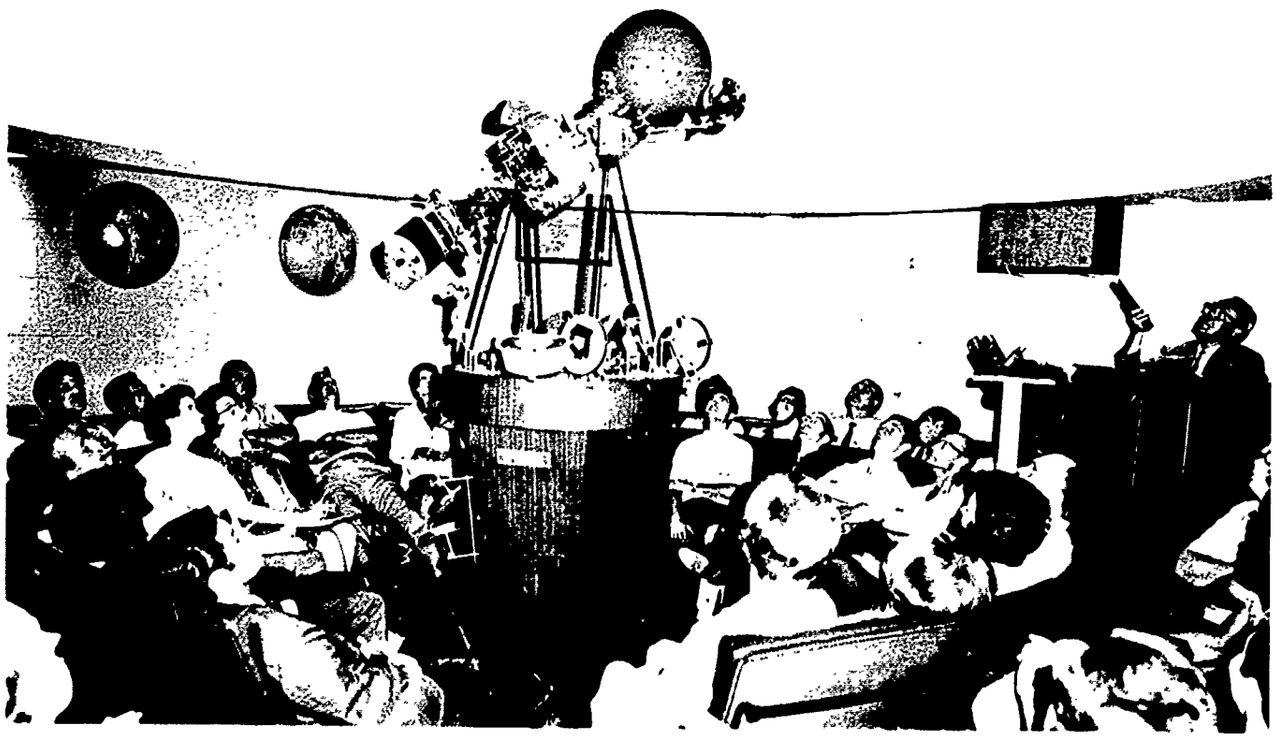
for this are the number of years of experience, and the per cent of each group with advanced degrees (Table 32).

The faculty employed in Tennessee's public institutions are paid less in comparison to those in neighboring states. The State, therefore, should strive to support adequately its institutions so that faculty salaries can be at least as good as the average in the Southern states. In addition, any inequities in salaries paid to women and blacks should be eliminated unless they are related to experience or qualifications.

It would have required about an additional $3 million to raise teaching faculty salaries to the average of the Southern region. To increase salaries of administrators, counselors, extension workers, etc. to the regional average would have added another $1 million, so that a total of $4 million would bring the Tennessee average up to the level of the regional average. This objective should be achieved as soon as possible.

Since competent faculty are absolutely essential for an effective and high quality higher education system, continuing efforts must be made to obtain and retain qualified faculty members and to facilitate their professional growth. This necessitates an improvement in salaries and other conditions which will make Tennessee institutions more attractive, careful selection of new faculty, and evaluation and rewards systems in each institution which reward effective performance, and provide motivation for a continued improvement of each faculty member.

A lecture at the Ed Baldwin Planetarium at Middle Tennessee State University draws a lot of interest.



FINANCING HIGHER EDUCATION

SUMMARY

Tennessee's efforts in support of higher education during the past 12 years have been remarkable: enrollments increased threefold and State appropriations increased sixfold; total expenditures for higher education is more than $250 million and State appropriations are more than $125 million; nine community colleges were established; and two four-year institutions were brought into the UT System.

The State, however, falls short when compared with nearby states. It is 10 per cent behind the average per student level of support among the 14 SREB states, and it is twelfth in per capita appropriations.

Student fees and charges provide about 23 per cent of the total educational budget. Students pay between $318 and $375 in annual charges, while out-of-state tuition averages $720 a year. The Commission recommends that increases in student charges be no more rapid than the rise in average family income in Tennessee, and that student aid be expanded to assist the low-income student.

State resources are allocated to institutions on a formula basis. All institutions, except UT Medical Units, Roane, Volunteer and Shelby State community colleges, Agricultural Experiment Station, Agricultural Extension Service, and Municipal Technical Advisory Service, are under the formula. The formula generates about 88 per cent of the State appropriations for the institutions. The formula method is one of the most sophisticated in the nation, and Tennessee is in the forefront in its efforts to create new and more equitable methods of allocating State resources.

The Commission has been exploring methods to improve the operation of the institutions and to reduce costs, even though the institutions—by most indices—have a very economical operation.

Future resource requirements have been projected up to 1980 for six major components: present instructional programs; improvement in quality of present instructional programs; health education; public service and research; additional community colleges; and student assistance.

The tremendous expansion of higher education in Tennessee in the last decade has been described in detail in preceding chapters. As was noted, most of this growth has been in public institutions, and the growth of expensive graduate programs has been even more rapid than the growth of the system as a whole. Many new programs have been added, the qualification of the faculty has increased, and 11 new institutions have been started. Although difficult to measure, the quality of higher education has probably increased, and more graduates are entering the economy with the education needed for a modern industrial society.

This growth phenomenon and the resultant size and quality of higher education in Tennessee today has been called its most distinguishing characteristic. This major accomplishment has required a massive increase in State funds. In the 1960-61 fiscal year, State appropriations for higher education totaled $18.8 million. For 1972-73, the comparable appropriation is $128.2 million; a 585 per cent increase in 12 years (Table 33). The funding increase for higher education in Tennessee over the last 12 years is twice as great as the percentage increase in enrollment. Even when the influence of inflation is considered, the percentage growth rate in support of higher education is substantially larger than the student growth rate (Figure 5).

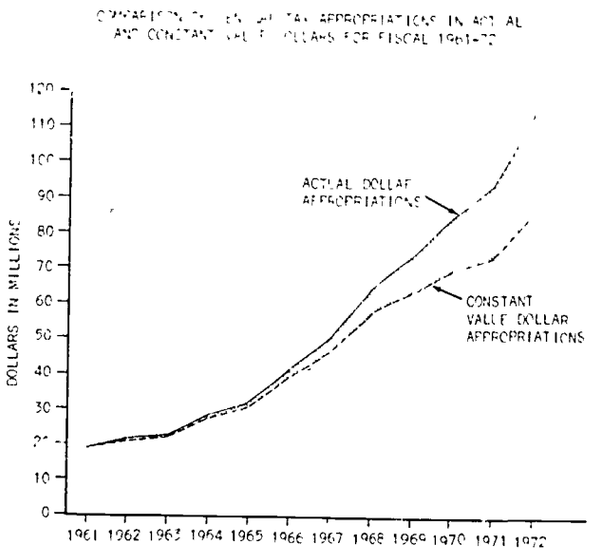


Figure 5

There can be no question that the governors, the General Assembly, and ultimately the Tennessee taxpayers have given great support to public higher education (Table 34). In fiscal 1961, higher education received 9.6 cents of every general tax dollar, and 18.3 cents during the current fiscal year.

This generally-favorable picture is not completely

TABLE 33

GENERAL TAX APPROPRIATIONS FOR TENNESSEE'S PUBLIC INSTITUTIONS FOR SELECTED YEARS
(In Thousands)

Institutions	*1960-61*	*1964-65*	*1968-69*	*1969-70*	*1970-71*	*1971-72*	*1972-73*
Austin Peay	$ [illegible]	$ 4,142	$11,887	$ 2,667	$ 3,015	$ 3,486	$ 3,792
East Tennessee	2,163	2,538	4,724	6,962	7,074	8,392	9,060
Memphis State	1,438	2,727	6,837	13,593	15,073	16,957	18,552
Middle Tennessee	1,165	2,266	5,353	5,941	6,812	8,136	9,044
Tennessee State	1,236	2,069	5,065	4,258	4,326	5,310	5,664
Tennessee Tech.	773	1,272	2,519	5,178	5,405	6,382	6,739
Total	$ 8,284	$15,014	$36,385	$38,599	$41,705	$ 48,663	$ 52,851
Cleveland			$ 755	$ 1,054	$ 1,181	$ 1,592	$ 1,814
Columbia			975	1,028	1,054	1,327	1,322
Dyersburg			75	483	712	757	790
Jackson			755	1,054	1,135	1,189	1,297
Motlow			75	483	760	804	932
Roane					71	536	740
Shelby					95	146	1,283
Volunteer					71	585	1,022
Walters				72	475	706	1,022
Total			$ 2,635	$ 4,174	$ 5,554	$ 7,642	$ 10,222
UT Knoxville	$ 8,622	$13,694	$21,536	$23,675	$25,422	$ 29,946	$ 33,545
UT Chattanooga				2,950	3,747	4,319	5,215
UT Martin			2,518	3,214	4,241	4,918	5,385
UT Nashville				700	1,083	1,441	2,392
UT Medical Units			5,179	6,023	6,370	8,188	9,556
UT Other	1,870	3,184	4,503	4,502	5,036	5,464	6,445
Total	$10,492	$16,878	$33,736	$41,064	$45,899	$ 54,276	$ 62,538
Other			514	564	514	595	2,563
Grand Total	$18,776	$31,892	$73,270	$84,401	$93,672	$111,176	$128,174

TABLE 34

GENERAL TAX APPROPRIATIONS PER FULL-TIME-EQUIVALENT STUDENT FOR TENNESSEE'S PUBLIC INSTITUTIONS OVER A 10-YEAR PERIOD

Institutions	*1962-63*	*1964-65*	*1967-68*	*1969-70*	*1970-71*	*1971-72*	*1972-73*
Regents' Senior Institutions	$430	$492	$816	$ 911	$ 946	$1,074	$1,163
Community Colleges	--	—	816	1,030	1,053	1,165	1,253
UT System	705	689	950	1,041	1,120	1,245	1,377
State Average	519	536	863	968	1,020	1,147	1,254

Figures do not include appropriations for Agricultural Extension Services, Agricultural Experiment Station, Municipal Technical Advisory Service, Memorial Research Center and Hospital, Memphis Medical Units, and statewide administrative services.

TABLE 35

COMPARISON OF APPROPRIATIONS PER FULL-TIME-EQUIVALENT STUDENT FOR TENNESSEE AND SOUTHERN REGIONAL STATES, FISCAL 1966-72

Fiscal Year	*Tennessee FTE Appropriations*	*Increase Over Previous Year*	*SREB FTE Appropriations*	*Increase Over Previous Year*	*Per Cent of SREB Appropriations*
1965-66	$ 753	——	$ 941	——	80.0%
1966-67	853	13.3%	1,001	6.37%	85.2%
1967-68	1,019	19.5%	1,135	13.38%	89.8%
1968-69	1,038	1.9%	1,166	2.73%	89.0%
1969-70	1,139	9.7%	1,329	13.97%	85.7%
1970-71	1,240	8.9%	1,420	6.84%	87.3%
1971-72	1,382	11.5%	1,541	8.52%	89.7%

optimistic. Higher education in Tennessee does not exist by itself. It must compete, for example, with neighboring states and the national labor market for good faculty. The quality of higher education in Tennessee must continuously stand comparison with the states contiguous to its borders, and, for that matter, with the other 49 states. In light of these comparisons, Tennessee higher education falls short.

When the average annual State appropriation per full-time-equivalent student in Tennessee is compared with the other 13 states in the area encompassed by the Southern Regional Education Board, the State ranks in the bottom quartile. In the most recent year for which comparative totals are available, the average state appropriation per student in the SREB area was $1,541. The Tennessee average was $1,382 (Table 35) or about 10 per cent behind the average per student level of support in the region.

Another common measure of State effort is the appropriation per capita for higher education. Tennessee ranks twelfth of the 14 SREB states (Table 36) and this year it appropriated less than $32 per citizen for higher education.

The State's efforts in support of higher education during the past 12 years have been remarkable: enrollments increased threefold, and State appropriations

TABLE 36

STATE APPROPRIATIONS PER CAPITA FOR HIGHER EDUCATION IN SOUTHERN REGIONAL EDUCATION BOARD STATES FOR FISCAL 1973*

States	*Per Capita Appropriation*
1. West Virginia	$43.75
2. Mississippi	42.87
3 North Carolina	42.86
4. Kentucky	42.28
5. Florida	41.62
6. Texas	39.79
7. Louisiana	39.43
8. South Carolina	39.39
9. Maryland	39.24
10. Virginia	38.99
11. Georgia	37.67
12. TENNESSEE	31.75
13. Alabama	30.33
14. Arkansas	28.50

*M. M. Chambers, "Grapevine" for appropriations data; U.S. Census "Population Estimates and Projections." Series P-25, No. 488, September, 1972.

increased sixfold; total expenditure of all funds for higher education in Tennessee is more than $250 million; appropriation of tax dollars is more than $125 million; nine two-year community colleges were established at Morristown, Cleveland, Tullahoma, Roane County, Gallatin, Columbia, Jackson, Dyersburg and Memphis; and new four-year institutions were brought into the UT System at Chattanooga and Nashville. This is a record of which Tennesseans can be proud, but not complacent. The states around Tennessee also have been working diligently. The future funding requirements for higher education in Tennessee, in comparison with neighboring states, will require continued effort on the part of State taxpayers. But this is an investment in the future of Tennessee and its people, and it will pay big dividends through graduates who are better equipped to live and work in tomorrow's complex world.

FUNDING HIGHER EDUCATION IN TENNESSEE TODAY

Tennessee's public institutions will spend approximately $276 million from all available sources in the current fiscal year. About $192 million will be utilized for educational purposes and student aid, and the remaining $84 milli will be spent for dormitories, apartments, food service, operation of hospitals, and other activities which are operated on a self-supporting basis.

The most important source of funding the State's public institutions is the tax dollar appropriated annually by the General Assembly. Such funds comprise 46 per cent of the total expenditures in higher education (Table 37), and about 65 per cent of the total educational expenditures (Table 38).

TABLE 37

SOURCE AND APPLICATION OF TOTAL FUNDS FOR TENNESSEE'S HIGHER EDUCATION INSTITUTIONS FOR FISCAL 1973

Resources	*Amount*	*% of Total*
State Appropriation	$125,611,000	45.5
Tuition and Fees	52,812,000	19 1
Other	62,985,000	22.8
Restricted	34,842,000	12.6
Total	$276,250,000	100.0
Expenditures		
Education and General	$189,910,000	68 7
Student Aid	2,486,000	1.0
Auxiliary Enterprises	48,916,000	17 7
Restricted	34,842,000	12.6
Total	$276.154,000	100.0

Budgeted

CHARGES LEVIED ON STUDENTS

Tuition, maintenance, and other fees are the second most important source of funding. Charges assessed on students for their education provide about 28 per cent of the total educational budget fo: the State's public colleges and universities. As State appropriations have risen during the past 12 years, student fees also have increased. The rate of student fees have risen about 80 per cent between 1962 and 1972, while per capita income increased about 100 per cent. In the fall of 1962.

TABLE 38

SOURCE AND APPLICATION OF UNRESTRICTED EDUCATION AND GENERAL BUDGETS FOR TENNESSEE'S HIGHER EDUCATION INSTITUTIONS FOR FISCAL 1973*

Resources	*Amount*	*Per Cent of Total*
State Appropriations	$125,611,000	65.6
Tuition and Fees	52,812,000	27.6
Other	13,070,000	6.8
Total	$191,493.000	100.0
Expenditures		
Instruction & Departmental Research	$ 96,505,000	50.2
Organized Educational Activities	5 991,000	3.1
Sponsored Research	535,000	.3
Other Separately Budgeted Research	6,446,000	3.3
Other Sponsored Programs	10,000	0.0
Extension and Public Service	12,369,000	6.4
Libraries	9,423,000	4.9
Student Services	10,288,000	5.3
Physical Plant Operation & Maintenance	23,199,000	12.1
General Administration	9,967,000	5.2
Staff Benefits	8,783,000	4.6
General Institutional Expenses	6,344,000	3.3
Student Aid	2,486,000	1.3
Total	$192,396,000	100 0

Budgeted

a full-time Tennessee student paid $165 per school year in maintenance fees at the Board of Regents universities, and $200-$225 at the UT institutions. Comparable charges in fall of 1972 were $318 and $333-$390 respectively. In addition, debt service fees on student centers and other capital projects was being paid by students in the Regents institutions. Out-of-state tuitions rose from $165-$300 in 1962 to $720 in the fall of 1972 (Table 39). In spite of these increases, the average fees for in-state and out-of-state students is below the average of the neighboring states (Table 40).

OTHER INCOME

Other income, which includes unrestricted Federal grants, miscellaneous fees, gifts, bequests, donations, interest and other earnings of the institutions, contributes only 7 per cent to total educational and general revenues in Tennessee.

Federal funds are a significant part of the budget of the UT Medical Units, contributing 36 per cent to the expected spending level of that institution in the current fiscal year. The UT Knoxville campus is also

TABLE 39

ANNUAL TUITION AND FEES FOR TENNESSEE'S HIGHER EDUCATION INSTITUTIONS, 1962-73

Institutions	*1961-62*	*1964-65*	*1969-70*	*1970-71*	*1971-72*	*1972-73*
Regents' Institutions						
Community Colleges						
Maintenance Fee	——	——	$165	$165	$195	$195
Out-of State Tuition	——	——	375	375	600	720
Senior Institutions						
Maintenance Fee	$165	$165	$225	$250	$286	$318
Out-of-State Tuition	165	165	480	480	660	720
UT System						
UT Knoxville						
Maintenance Fee	$225	$225	$336	$336	$354	$375
Out-of-State Tuition	300	300	615	615	615	720
UT Chattanooga						
Maintenance Fee	——	——	$340	$365	$384	$390
Out-of-State Tuition	——	——	615	615	615	720
UT Martin						
Maintenance Fee	$201	$201	$291	$291	$309	$357
Out-of-State Tuition	300	300	615	615	615	720
UT Nashville						
Maintenance Fee	——	——	$315	$315	$333	$333
Out-of-State Tuition	——	——	615	615	615	720

TABLE 40

MEDIAN TUITION AND REQUIRED FEES AT PUBLIC INSTITUTIONS IN THE SOUTHERN REGIONAL EDUCATION BOARD STATES FOR FISCAL 1973

	Principal State Universities		*State Colleges and Regional Universities*		*Community Colleges*	
States	*In-State Rates*	*Out-of-State Rates*	*In-State Rates*	*Out-of-State Rates*	*In-State Rates*	*Out-of-State Rates*
Alabama	$483	$ 960	$376	$ 615	$203	$ 368
Arkansas	400	930	400	750	240	485
Florida*	570	1,470	570	1,470	209	409
Georgia	405	1,110	345	885	255	615
Kentucky	405	1,120	360	876	345	980
Louisiana*	320	820	220	720		
Maryland	639	1,445	428	740	350	1,093
Mississippi	516	1,116	428	1,028	180	580
North Carolina	422	1,997	442	2,002	144	431
South Carolina	575	1,280	490	1,180		
TENNESSEE	399	1,119	358	1,078	195	915
Texas	193	1,053	193	1,053	96	960
Virginia	625	1,287	598	991	225	750
West Virginia	310	1,140	250	1,000	216	408

*Graduate fees are slightly higher.

the recipient of substantial funds, both from private sources and Federal government, and it leads other State institutions in this category.

ALLOCATING STATE RESOURCES FOR HIGHER EDUCATION

With the State tax dollar being the primary source of support for Tennessee's public colleges and universities, a fair method of allocating funds among the different institutions is needed. Because all institutions are not alike, a fair method is not simple to devise. With the advent of the Commission, a new formula approach for allocating the tax dollars was adopted. It was revised several times, and the current version—which incorporates a sophisticated study of "average costs" for various instructional programs offered at different class levels—was first used in fiscal 1972. In essence, production of student credit hours and their attendant costs are the foundation of the formula.

Tennessee's senior institutions, with the exception of UT Medical Units, are covered by the formula. Six of the nine community colleges are also under the formula, with the newest—Roane, Volunteer and Shelby—excluded. Under present policy, a community college must be in operation three years before it comes under the formula. The rationale underlying this philosophy is that new institutions have certain start-up costs which cannot be covered by the formula. In addition, it is very difficult to predict accurately the enrollment of new institutions.

Three additional units of UT are not covered by the formula: Agricultural Experimental Station program, the Agricultural Extension Service program, and Municipal Technical Advisory Service.

For those institutions on the formula, approximately 88 per cent of their State appropriations are generated by it, while the remaining 12 per cent of expenditures cover such items as research, public service costs, and organized educational activities, (e.g., operation of campus schools, and other educational laboratories). Allocations for these activities are based on actual expenditures in the prior year, plus inflationary or other increments.

The formula method used to allocate tax dollars in Tennessee is one of the more sophisticated in the nation. More states are now using this approach for allocation of funds, and Tennessee is in the forefront in its efforts to create new, and more equitable, methods of allocating State resources for higher education. A detailed description of the Tennessee formula appears in Appendix A.

Finally, it should be noted that since the formula was revised two years ago, the General Assembly has not yet been able to appropriate all funds generated by the method. In the current fiscal year, the institutions are operating with 93 per cent of the total tax dollars produced by the formula.

WHO SHOULD PAY FOR HIGHER EDUCATION?

An even more fundamental question than the method of allocating State funds among public institutions is the basic question of how much of the cost of higher education should be paid by the taxpayer, how much by the student and his family, and how much is likely to come from other sources. The student must pay tuition and his living expenses, and he must give up the earnings he would have made if he did not go to college. Thus, from the student's point of view, even in a low-tuition public institution, he and his parents are responsible for more than three-fourths of the cost of his education.

Advocates of high tuition point out that education is an economic benefit to the individual—helping him to qualify for a better paying position—and tuition should therefore be high at public institutions. Advocates of low tuition point out that high tuition will restrict many qualified students from low and moderate income families from attending college; high tuition denies the equality of opportunity which is a cornerstone of our democratic society.

Advocates of low tuition also point out that graduates who earn more money because of their college education also pay more taxes; and that over a lifetime, the college graduate repays the subsidy for his educa-

East meets the West on the campus of University of Tennessee at Chattanooga, one of the five UT campuses.

An adult evening class student's family helps her to mark graduation at Jackson State Community College.

tion many fold. From this point of view, low tuition is a good public policy which is also economically sound.

Earlier, it was pointed out that the tuition gap between public and private institutions is making it increasingly difficult for many private colleges to attract students. The long-run consequence of a low tuition policy in the public sector will be to force many private institutions out of existence. As private college enrollments drop, the public institutions will have to absorb the additional students, and the extra costs will fall on the taxpayers.

The Commission believes that it is most important to keep the door of educational opportunity open for all qualified students, and maintenance fees will have to be kept low until such time as student assistance funds are available for all low income students who want to attend college. *It is recommended, therefore, that maintenance fees in public institutions increase no more rapidly than the rise in average family income in Tennessee.* This means that the average burden of costs on the student and his family would not rise more rapidly than the average ability to pay.

An adequate program of student assistance is essential in providing opportunities to attend college for that 40—50 per cent of Tennessee youth from low and moderate income families. Student assistance includes work opportunities, loans, and grants which can be combined in various ways to meet the specific needs of students. Tennessee now has three types of assistance for low income students: work study programs operated by each institution; loans from Federal sources and from the Guaranteed Loan Program operated through banks by the Tennessee Educational Loan Corporation; and grants from private gifts, from the Federal Educational Opportunity Grant Program, and from the new Tennessee Student Assistance Agency. From these multiple sources, needy students have a variety of ways to help pay the costs of their education. The total funds available are considerably short of meeting the total need for student aid, although the new Federal program of basic opportunity grants, if funded, could close much of the need gap. *It is recommended that all types of student aid be expanded until they approximate the total student need for financial assistance.*

Federal work-study programs have proven to be valuable in providing both support and useful work to many students. The Guaranteed Student Loans have been under-utilized in Tennessee in comparison with most other states, and this program has a potential for helping many more students. The new Student Assistance Program, funded for the first time in 1972, is assisting more than 2,000 Tennesseans at public and private institutions. About 55 per cent of the students who received grants are attending public institutions, but approximately 70 per cent of the funds were provided to students attending private colleges because of the higher average tuition awards in the private sector. This program is eligible for matching Federal funds and it should be continued and expanded.

The Student Assistance Program is also important in giving students a choice between a public or private institution, and, to the extent that it enables the private institutions to maintain their enrollment and continue to serve Tennesseans, it can help reduce the future tax burdens on the State. The exact amount of cost avoidance involved cannot be determined, but if the Federal matching funds are made available for this program, it could be fairly substantial.

The future size of the Student Assistance Program should be related to the adequacy of Federal funding of the several programs of student assistance. If the past history of only partial funding of Federal student assistance programs continues, young people of the State will need a Student Assistance Program considerably larger than the present one. The normal growth of the current Student Assistance Program—which provides for continuation of each grant for up to four years if the student continues to have a need—will require appropriations of approximately $4 million to $5 million annually by 1975-76, which may be matched by Federal funds that would provide an additional $3 million to $4 million a year. The continuation of the program at its present level of annual State funding, i.e., $1,250,000 for new awards each year, plus matching Federal money, might serve 15,000 to 17,000 Tennesseans by mid-1970, provided that the matching Federal funds are available.

It is recommended that the Student Assistance Program, in combination with Federal student aid funds, be expanded until all needy Tennessee students can get assistance from either State, Federal, or institutional sources.

In addition, it is recommended that efforts be made to expand the utilization of the Guaranteed Loan Program so that it serves a larger percentage of Tennessee youth.

MORE ECONOMICAL OPERATION

Methods of measuring the effectiveness of college operations are still in their infancy. Until ways of measuring the quality of the output are developed to a higher level, it will be difficult to apply cost-benefit models to higher education operations. There are, however, several intermediate steps which can be taken to improve the operation of the institutions and to reduce costs. The Commission has been exploring several of these methods with the institutions.

First, the programs being offered have been examined and a question raised about the continuation of those which are low producers of graduates. As a result, a number of programs have been consolidated and a few eliminated. Most of these have not led to any reduction of faculty or staff nor have they resulted in any large cost reductions, although the faculty's time may be more profitably utilized.

Second, a continuing study is underway on the maintenance and operation of the physical plant to identify areas where costs are unreasonable, and to institute corrective measures by the institutions.

Third, the Commission will coordinate studies, for more efficient utilization of computer facilities, which are being undertaken by the UT System staff and the staff of the Board of Regents. This should assure efficient procedures in an area where budget costs have risen rapidly in recent years.

Fourth, upon the request of the General Assembly, the Commission has undertaken a study of faculty workloads. This should reveal any areas of underutilization of faculty, and the institutions will be requested to examine carefully their practices in this area.

While it is important to study these and other areas of institutional operations (such as libraries) to determine the most effective operation per dollar spent it should be recognized that Tennessee's public institutions—by most indices—have a very economic operation. The per student appropriations have been 5 to 10 per cent below the regional average; faculty salaries are lower; and faculty teach more students than the average in the region. Salary levels and faculty-student ratios are important determinants of overall costs, and on these measures Tennessee has a very economical operation.

The Commission, in the future, will have to tie the results of the various studies on institutional operations into the formula and into the budgeting process so that there will be a continuing effort to achieve a more efficient operation.

It is recommended that the budget process be fully utilized as a means of inducing heightened efficiency and economy in the operation of each public higher education institution. Budgeting concepts should be expanded to focus on outputs, long range planning, and sound internal management.

FUTURE RESOURCE REQUIREMENTS

One of the important, but difficult, tasks in planning is to determine what the future requirements for funding will be. Many factors must be taken into consideration, and the projections have been made as simple as possible. It should be understood, however, that some of the factors are likely to change, and some of the assumptions will prove to be in error.

Estimates of State appropriations required for higher education activity have been formulated for six major components: (1) present instructional programs; (2) improvement in quality of the present instructional program; (3) health education; (4) public service and research; (5) additional community colleges; and (6) the Student Assistance Program. Table 41 shows the State appropriations required for each component during the next seven years.

The projection for the present instructional program component has been built on the 1973 formula base. It utilizes the full-time-equivalent student projections presented earlier and includes a four per cent annual inflation estimate, but it makes no assumptions about improvements to the existing program. This set of estimates is termed the continuation projection.

Appropriation estimates for quality improvements in existing instructional programs were developed by assuming that Tennessee would attain the average FTE

TABLE 41

APPROPRIATION REQUIREMENTS FOR PUBLIC HIGHER EDUCATION IN TENNESSEE, 1971-81
(In millions)*

Program Component	*1970-71*	*1971-72*	*1972-73*	*1973-74*	*1975-76*	*1980-81*
Continuation of Present Instructional Program	$93.7	$111.2	$128.2	$146.6	$170-175	$230-240
			IMPROVEMENTS			
Attaining the Southeastern FTE Average Expenditure				$13-14	$16-18	$20-25
Health Education				$3.6	$5-6	$6-7
Public Service and Research				$1.5	$4.5-5	$12-13
New Community Colleges					$1.5-2	$5-6
Student Assistance Program				$1.3	$4	$5-6
Total	$93.7	$111.2	$128.2	$166-167	$201-211	$278-297

*Estimates by the THEC staff.

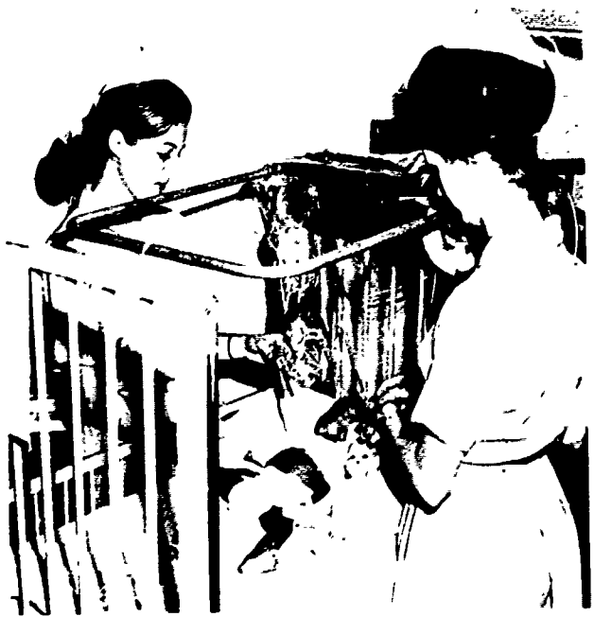
After years of study, that happy day arrives for the students at Tennessee State University in Nashville.

student expenditure of the Southern states by 1980. Appropriation trends in Tennessee and the Southern region were used in making this projection, which can be termed the "expansion" or "improvement" portion of the long-range budget estimates.

Health education is becoming more important in Tennessee as more citizens expect and demand a high level of medical care. Such demand puts great pressure on the educational system to train competent practitioners in sufficient quantity to meet the demand. Budget estimates for this component assume expansion and improvement of the UT Medical Units in Memphis, greater use of the two private medical schools in Tennessee, establishment of three clinical centers in the State, and operation of an incentive loan-scholarship program to bring physicians into under-served areas of Tennessee.

The State plan commits Tennessees institutions to a greater effort in public service and research. As a result, citizens, political subdivisions, and industries in Tennessee can call upon the colleges and universities for assistance in solving their problems and developing the State's full economic potential. Today, the public institutions are spending approximately $14 million in State, Federal and local funds for agricultural research and extension service. Approximately $4 million is being spent for non-agricultural research and public service. The State could benefit from as much emphasis on non-agricultural public service and research as it now devotes to agricultural research and extension. The benefits of Tennessee's agricultural programs in increased productivity and a higher quality of rural life are well known, and a similar investment in service to other areas of the State's economy should pay big dividends. Estimates for this function, shown in Table 41, assume that $12 million in additional State funds will be expended by fiscal year 1981 for non-agricultural research and public service, so that Tennessee will be spending about as much on non-agricultural research and public service as it is spending on agriculture.

The hospital environment provides excellent learning experiences for students at UT in Memphis.



The State plan also calls for establishment of three new community colleges by 1980, and the appropriation estimates assume establishment f one college in each of the fiscal years of 1975, 1976, and 1977. The totals include start-up and operational costs traditionally funded from general tax revenues.

Finally, estimates for student assistance assume increases in the program for fiscal 1975 and 1976 as the program builds to accommodate its third and final classes. Thereafter, the estimates level off and assume a relatively stable number of students to be served.

A Cleveland State Community College student paints outdoors (above), while a coed at Columbia State Community College (lower left) learns in the laboratory.

ALLOCATIONS FORMULA

The Commission proposes that the formula currently utilized for allocating State resources be reviewed and that a major effort be made to improve the formula by:

(a) Bringing non-formula parts of the budget under the formula whenever valid criteria can be devised to measure research and public service activities.

(b) Relating the formula more directly to measures of output and quality of education rather than basing it primarily on the average input of programs.

(c) Providing incentives in the formula for better management and more innovative educational programs.

(d) Retaining the concept of equitable allocation of funds for basic cost areas.

The Commission believes the formula method of allocating resources between the various institutions is desirable and recommends its continued use and the improvement of the elements as indicated above.

All State institutions must be concerned about the efficient and economical delivery of higher education services. The Commission suggests that the budget process be fully utilized as a means of promoting heightened efficiency and economy in each institution's operations. The Commission also suggests that the budgeting concepts be expanded to focus on longer range fiscal planning, management objectives, program output measures, and cost effectiveness practices.

The Commission is aware that this effort is not an easy task; that the goal cannot be attained in a single year; and that no institution has yet attained these objectives. These goals, however, are as much within the realm of possibility in Tennessee as in any other state, particularly since the State has already made a good start in this direction.

CAPITAL FUND REQUIREMENTS

SUMMARY

Tennessee's investment in higher education facilities is more than $500 million. The past decade saw more than $300 million in new construction being authorized and started when enrollment in public institutions tripled.

The 87th General Assembly, in 1971-72, authorized $68.6 million for capital improvements at higher education institutions; a sum larger than that in any previous biennium.

The building program of the seventies is aimed at rounding out the campus construction of the last decade. Based on projected enrollments, Tennessee will need additional academic space ranging from 2.7 to 3.1 million gross square feet by 1980.

The greatest growth is expected among the community colleges, where they will need about 1.1 million gross square feet beyond what is currently funded or contracted. The regional universities will require about .7 million square feet, while the UT System will need about .9 million square feet. In addition, about one million sauare feet of existing space will have to be renovated.

Building during the next decade will have to be more selective and more carefully planned. Between $21 and $28 million will be required yearly for the next six years.

During the past decade, the State spent $180 million to build 10 million square feet. It is expected to spend about $130 million to build only 27 per cent as much new space in the seventies.

Adequate physical facilities are important to a modern instructional program, and Tennessee's institutions have developed complex, highly-specialized campuses to provide the instructional setting and equipment for the present day programs. A university has many characteristics of a small city: streets, parking areas, specialized and residential buildings, recreational areas, offices, and administrative and maintenance facilities.

Less than 10 per cent of space at Tennessee's public institutions is devoted to classrooms. More than four times as much area is devoted to living and eating, and student activities. More space (about 11 per cent) is utilized for laboratories than for classrooms, and about 12 per cent of all space is used for offices for faculty, administrators and other personnel. Libraries and athletic facilities also require a major part of the space on campuses.

HISTORY OF CAPITAL CONSTRUCTION

Tennessee's investment in higher education facilities of all types is more than one-half billion dollars, including land, academic buildings, equipment, dormitories and other auxiliary-support facilities. During the 1960's, enrollment in public institutions tripled and more than $300 million in new construction was authorized and started. The General Assembly in 1971 and 1972 authorized $68.6 million for capital improvements at higher education institutions, a sum larger than that in any previous biennium. Educational leaders in Tennessee have recognized the importance of developing their campuses adequately. As a result, the State now has 18 attractive, generally well-designed campuses, and two centers with permanent facilities. Roane State Community College campus is currently under construction, although classes began in fall of 1971 in temporary quarters. Shelby State Community College in Memphis began course offerings in fall of 1972 in temporary quarters. When both are complete, the State will have 20 major campuses, as well as several resident centers with permanent facilities.

Memphis State's Malcolm R. Patterson Building, completed in 1967, was named after Governor Patterson; chief executive in 1909 when MSU was founded.

Of the 24 million square feet of space available to Tennessee public institutions, more than 18 million (78 per cent) was constructed in the past 20 years. Fifteen million square feet were built in the last decade. Over 10 million square feet of academic buildings were constructed, with the remaining being dormitories, student centers and other auxiliary space The building program has kept pace with the enrollment growth on most campuses, although needs for some specialized facilities remain unmet at nearly every institution.

DEVELOPMENT OF FORMULA STANDARDS

Until 1969, a total capital outlay sum, based on enrollment, was authorized for each institution. Recognized as an inadequate and somewhat inequitable procedure, the Commission developed a new and more objective approach to determining capital outlay needs. With the new procedure, each project was reviewed and evaluated through a set of objective standards. This procedure was suggested and supported by a Legislative Fiscal Review Committee directive, and made possible by an inventory and cataloging of space use at each institution. A study was also made to determine how well classrooms and laboratories were utilized, and an evaluation revealed the physical condition of each building on all campuses.

The inventory and cataloging provided information on all buildings and rooms, and revealed that more than 10 million square feet was related directly to instructional programs. A study of classroom utilization was accomplished through use of class information gathered in the fall, 1969 *Tennessee Higher Education Commission Instructional Cost Study*. It indicated that most campuses do not need new classrooms now. The funds currently appropriated, but not yet under contract, will provide most of the classrooms needed by 1975. There is a need, however, for various types of special-purpose space on several campuses An evaluation of the condition of all buildings found that of the 24 million square feet inspected, 21 million was in satisfactory condition, two million was considered temporary or should be razed, and one million square feet required major renovation.

The inventory and utilization studies enabled the Commission to develop and apply space standards to each project request, and to determine its need. This objective approach permitted the Commission to assign priorities to construction requests, as well as to identify unnecessary construction.

STANDARDS FOR DETERMINING SPACE REQUIREMENTS

Space standards developed by the Commission were based on studies to determine what is needed to carry out an adequate instructional program. Data from other state space analyses and standards were also used; the most helpful were studies in Colorado, and the *University Space Planning* by Bareither and Schillinger. The basic goal in application of standards is to determine, equitably, the space needs of each institution. Particular situations and conditions have to be treated individually, since the standards do not fit all specialized situations adequately. The specific standards developed for major types of space (classrooms, offices, etc.) appear in the Appendix.

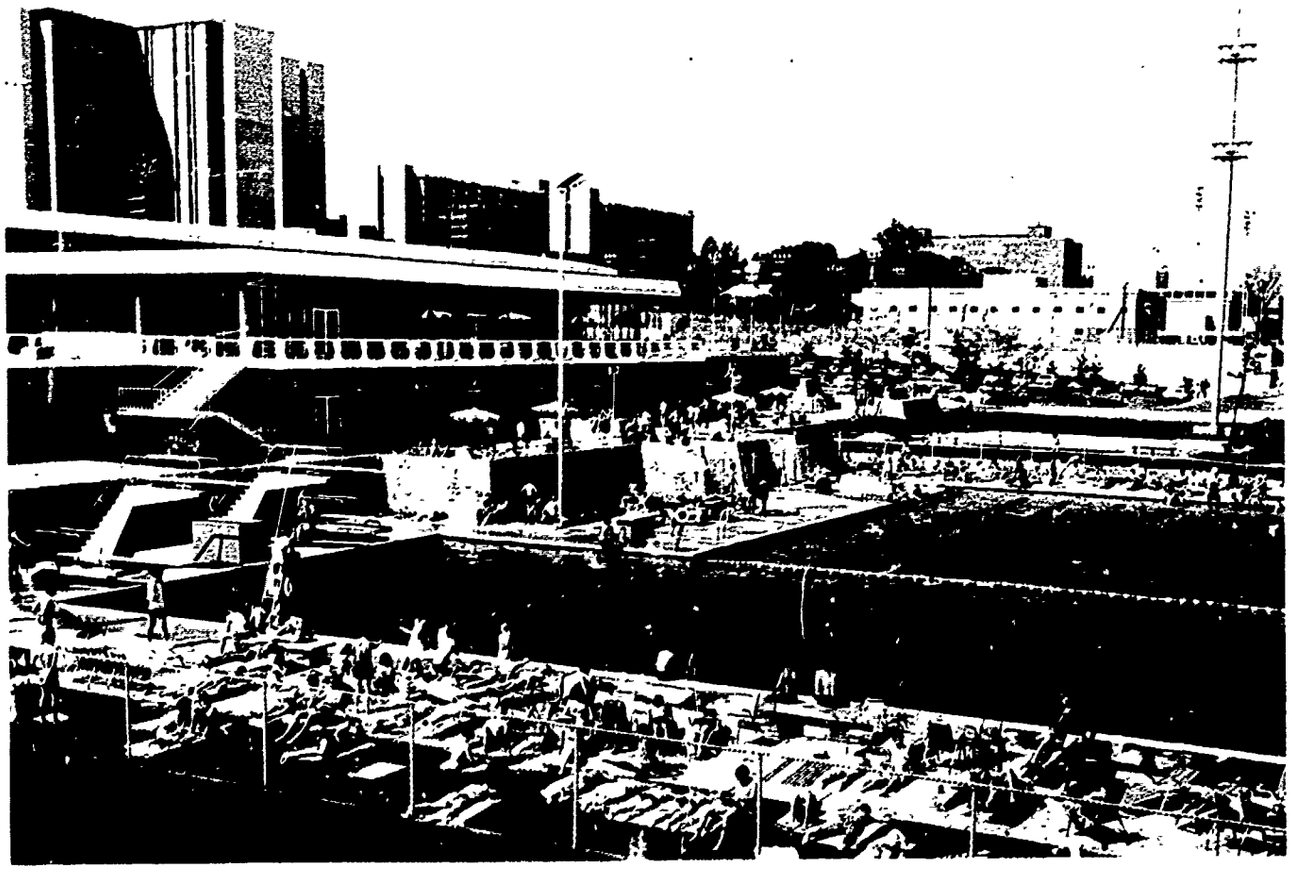
PROJECTED SPACE NEEDS

The building program in the 1970's should be aimed toward rounding out the campus construction of the last decade. Application of the standards to projected enrollment indicates that Tennessee's institutions will need additional academic space ranging from 2.7 to 3.1 million gross square feet by 1980, to go with the 15.3 million square feet already available or under construction. While some additional classroom and laboratory space will be needed- approximately 550,000 square feet—the bulk is for specialized facilities to house medical school, physical education, fine arts, technological, library, and administrative activities. Although most institutions have adequate dormitory space, apartments will be needed for married students. If single student dormitories are constructed, it is suggested that they be designed for easy conversion to apartment style quarters if necessary. Food service and student center facilities also need to be expanded at some locations, depending on the enrollment growth. Need for this type space, which can be built with revenue bond funds paid from receipts of the projects, has not been included in estimates of needed construction funds described here.

Understandably, the greatest growth is expected among the community colleges. By 1980, they are expected to need about 1.1 million gross square feet in addition to that currently funded or under contract. Nearly all of this will be in the new urban community colleges. Existing community colleges in non-metropolitan areas will need only minor additions to round out their campuses. The Regents universities will require about 700,000 gross square feet, and the UT System's four main campuses, exclusive of the Medical Units, about 900,000 gross square feet of additional space. Also, about a million square feet of existing space will need to be renovated during the 1970's.

Building during the next decade will have to be more selective and more carefully planned. Facilities will have to be designed for greater flexibility of use. It cannot be assumed, as in the past, that a building will be outgrown before its completion.

During warm and sunny days, the most popular place on the UT Knoxville campus is the Student Aquatic Center.



During 1960-65, annual building costs increased from 1.5 to 3.9 per cent. Construction costs, however, increased sharply after 1965, with annual increases ranging from 4.4 to about 13.3 per cent. Between 1966 and 1970, construction costs increased approximately 33.4 per cent for an annual average rise of 8.4 per cent during the last half of the decade. From 1970 to 1972, building costs have risen about 10 per cent each year.

It is likely that there will be a continued rise in construction costs. For planning purposes, an annual increase of five per cent per year is assumed. This is a conservative estimate. The State, based on this assumed rise, will need to spend about $117-$138 million on higher education construction in the 1973-1980 period. To be available by 1980, this expenditure should be programmed between 1974-75 and 1978-79

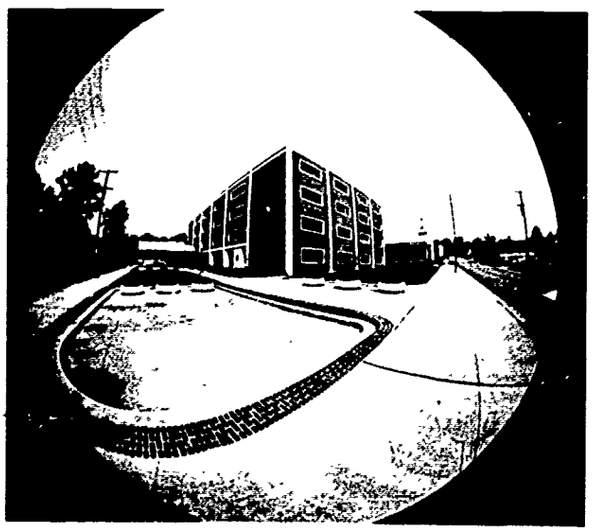
It is assumed that between 500,000 and 600,000 square feet of new construction will be financed each year for five years, and that 300,000 square feet will be renovated each year for the next three years. Table 42 shows the capital outlay fund requirements for the next six years.

TABLE 42

ESTIMATED FUNDING REQUIRED FOR CONSTRUCTION OF 500,000-600,000 SQUARE FEET OF ACADEMIC SPACE ANNUALLY, 1975-79

Year	*Average Cost Per Square Foot*	*General Obligation Bond Authorization (In $millions)*
1974-75*	$37	$ 23.5-27.2
1975-76*	39	24.5-28.4
1976-77*	41	25.5-29.6
1977-78	43	21.5-25.8
1978-79	45	22.5-27.0
Total		$117.5-138

*Renovation projects included.



Between $21 and $28 million in new capital construction will be required each year for the next six years. If the rise in building costs ceases, these requirements would be about 15 per cent lower.

In addition to these capital costs, maintenance and campus improvements, some land acquisition, and utilities expansion and modification will require $8-$10 million a year on the average. A request for a major maintenance and campus improvement fund has been made to the Governor and General Assembly If funded, it will provide between one and two per cent of the value of the buildings and equipment in higher education each year to protect and enhance Tennessee's half billion dollar investment in facilities.

During the past decade, more than 10 million square feet of academic space was built with $180 million in bond funds and appropriations. In this decade, the State will have to spend about $130 million or more to build only about 27 per cent as much new space.

The stairs of a campus building at Tennessee State University provide a good place to visit with friends.

Photographic ingenuity provides an unusual view of Grote Hall on the campus of UT Chattanooga.

APPENDIX A

TENNESSEE HIGHER EDUCATION APPROPRIATIONS FORMULA

The THEC formula for generating state appropriations requests is applicable only to the "Educational and General" (E & G) budget. Restricted fund activities and auxiliary enterprises are excluded from formula computations. The UT Medical Units and three new community colleges are not covered by the formula.

The formula is used to generate funds in six functional areas of higher education. Each is identified as a separate entity for accounting purposes in the standard accounting taxonomy of the National Association of College and University Business Officers. The six functional categories which account for approximately 85 per cent of the unrestricted "Educational and General" budgets of the affected colleges and universities are: (1) instruction and department research, (2) libraries, (3) maintenance and operation of physical plant, (4) general administration, (5) general institutional expenses, and (6) student services.

While organizational arrangements for carrying out these functions may vary from campus to campus, the functions are common to all, and a standard accounting structure, which is used for reporting purposes by each of the State's public institutions, bridges the organizational differences and makes the appropriations formula workable.

INSTRUCTION AND DEPARTMENTAL RESEARCH

This is the paramount category of the formula, just as it is the primary function in that it requires the greatest percentage of the budgetary funds.

The instruction and departmental research function of the appropriations formula is based on a sophisticated Instruction and Departmental Research Cost Study conducted by the THEC staff with the support of the institutions in the fall of 1971. The objective of the Cost Study is to determine the average cost of one student credit hour (quarter hour) in each academic program area by course level. Thirty academic areas which have been defined and standardized by the U.S. Office of Education[1] are used in the study. The course levels which are used in the study are as follows:

Level 1—Freshman and Sophomore level courses
Level 2—Junior and Senior level courses
Level 3—Master's level courses
Level 4—Doctoral level courses
Level 5—Professional Law level courses
Level 6—Non-credit Remedial courses
Level 7—Non-credit Continuing Education courses

Costs per student credit hour which were based on actual expenditures were calculated for each institution and for all institutions in the State. This average cost per student credit hour for the State was used in the appropriations request. For example, the total cost of all the course offered in mathematics at the freshman and sophomore level in the fall quarter was divided by the number of student credit hours earned in these courses in the fall quarter. As it turned out, the average cost for one credit hour in mathematics at the freshman and sophomore level in the Tennessee public institutions was $12.06.

In preparing budget requests, all institutions were asked to project the total number of hours they would offer by level in each program area, and to apply the THEC rates that resulted from the Cost Study.

In summary, actual program costs and estimated student credit hours drive the I & DR portion of the formula. It should be noted that the I & DR Cost Study rates used in the Fall of 1972 were increased by 5 per cent to cover inflation.

LIBRARIES

The funds the formula generates for libraries are also based on the production of student credit hours by level. Actual library costs in the State institutions were used to determine the rates by level.

The basic rate is $1.12 per student credit hour at level 1. The rate at level 2 is double the basic rate; at level three it is five times the basic rate; at level four it's eight times the basic rate; at level 5 it is six times the basic rate; and at levels 6 and 7 it is one and one-half times the basic rate.

For example, if the total projected student credit hours offered in all academic areas at level 1 totaled 10,000 for the year at a particular institution, the formula would yield $11,200 for level 1 library services.

[1] The academic areas include agriculture and forestry, architecture, area studies, biological science, business and management, communications, computer and information sciences, education, engineering, fine and applied arts, foreign languages, health professions, home economics, law, letters, library science, mathematics, military science, physical science, psychology, public affairs and services, social science, theology, interdisciplinary studies, business and commerce technology, data processing technology, health services and paramedical technology, mechanical and engineering technology, natural science technology, and public service technology.

MAINTENANCE AND OPERATION OF THE PHYSICAL PLANT

The funds generated under the formula for this function are determined by the total gross square footage of building space available for the E & G programs. In the current formula the total square footage was multiplied by a rate of $1.53 per foot to determine the allowable sum at each institution for maintenance and operation of physical plant. Actual maintenance and operations costs at each institution were used in determining the $1.53 rate.

GENERAL ADMINISTRATION AND GENERAL INSTITUTIONAL

Under the formula these two functions are combined in arriving at an allowable sum. The funds spent in these categories are believed to be most directly related to the total dollars expended for E & G at the institution.

Hence, the formula permits an institution to levy an 8.5 per cent charge on its total E & G budget (minus general administration and general institutional) in arriving at a formula appropriation for these two categories. In short, the amount allowed under the formula for General Administration and General Institutional is equal to 8.5 per cent of the total E & G budget minus these two functions.

STUDENT SERVICES

The formula allows $90 for each student enrolled in the institution (headcount) regardless of the hours he is carrying. The $90 rate is based on actual expenditures in this area.

OTHER FUNCTIONAL CATEGORIES

Seven other functional categories are considered in budget-making, but are non-formula items. These categories are: (1) student aid, (2) organized educatio' activities, (3) staff benefits, (4) extension and publ. service, (5) other separately budgeted research, (6) unrestricted funds required for restricted funds projects, and (7) remedial education programs

All non-formula items are evaluated individually, utilizing historical patterns of expenditure. New or expanded programs in the non-formula area are submitted separately with a justification of each.

In arriving at a final "formula recommendation" for each institution, the formula totals are added to the approved non-formula totals. Estimated revenues are subtracted. and the remaining balance is the formula appropriation recommendation.

APPENDIX B
LIST OF STUDIES

Academic Programs: Inventory and Projection, 3 Vols., 1969.
Admissions and Financial Aid. Tennessee Institutions. 1972-73.
An Instructional Analysis of Tennessee Public Higher Education, Fall 1969.
Biennial Report of Tennessee Higher Education Commission, 1969.
Building and Capital Outlay Programs for 1972-73.
Building Program and Capital Outlay Program for Higher Education. 1971.
Comparison of Enrollment 1970-71, State Appropriations, and Faculty Salaries in Public Higher Education in 13 Southern States, 1971.
Cost of Collegiate Nursing Education in Tennessee, 1969.
Directory of Higher Education in Tennessee, 1971.
Engineering Consultants' Report on Engineering Education in Tennessee, 1969.
Enrollment Projections and Community College Location, 1970.
Financial Reporting for Tennessee Public Colleges and Universities, 1970.
Medical Education for Tennessee, 1971.
Physical Facilities Inventory Utilization Study, 1968.
Physical Facilities Inventory and Space Utilization Study, 1971.
Plans for Progress, 1969.
Procedures for Projecting Physical Space Requirements, 1969.
Procedures for Reporting and Maintaining Information on Tennessee Higher Education Physical Facilities, 1971.
Special Facilities Study, 1971.
Student Retention– Attrition, Entering Freshmen, Fall 1968, 4 Vols., 1969-72.
Study of Business Programs in Tennessee Public Institutions, 1972.
Study of Private Higher Education in Tennessee, 1970.
Summary of Institutional Requests for Operating Funds, 1969-72.
Summary of Institutional Requests for Operating Funds, 1972-73.
Summary of Institutional Requests for Operating Funds, 1973-74.
Survey of Nursing Education in Tennessee, 1969.
Tennessee's Choice and Challenge, 1968.
Tennessee's Investment in Youth, 1971.
Towards a Professional Career: A Study of Factors Affecting Application to Graduate School, 1970.
Work Program of Higher Education, 1972-73.

APPENDIX C

STANDARDS FOR DETERMINING SPACE NEEDS AT PUBLIC INSTITUTIONS

CLASSROOMS

General-purpose classrooms should be utilized an average of 30 hours per week. When in use, an average of 60 per cent of the stations (seats) should be utilized. Assuming that a classroom can accommodate one seat for every 15 square feet of space, an average of 0.83 square feet of classroom space is required for each student class hour scheduled. After class hours scheduled in the laboratory and/or other types of space are subtracted, space needed can be determined and projected, based on ratio between FTE students and contact hours.

CLASS LABORATORIES

For laboratory space not assigned to any discipline, a standard of 60 square feet per station will be used. General laboratories should be utilized an average of at least 20 hours a week. When in use, an average of 80 per cent of the stations should be utilized. This resolves itself into a factor of 3.75 square feet per weekly student contact hour. It should be noted that laboratories, by definition, should serve specific disciplines; so it would be expected that relatively few general laboratories would be found in any institution.

Beyond this broad standard, the following standards by discipline are suggested; in some cases by broad academic and in others by specific sub-discipline. Data provided in both the 1969 Cost Study and Physical Facilities Inventory will allow analysis of existing space by academic division, and/or sub-discipline, as reflected in the U. S. Office of Education taxonomy. Therefore, while the following standards would be generally applicable, some changes may have to be made based on the analysis of the facilities and course data currently being collected.

The factor itself assumes that laboratories will be used 20 hours a week; and when in use, 80 per cent of the stations will be occupied. Also, the factor includes service space requirements for each category.

INDIVIDUAL STUDY LABORATORY

1.5 assignable square feet per FTE student.

NON-CLASS STUDY LABORATORY

Measures of space needed in this area are difficult; however, space standards can be developed by relating the discipline involved and the number of research persons. This will be done as project requests are submitted.

	Square Feet Per Station Including Service Area	*Space Factor Per Weekly Student Contact Hour*
Agriculture	72	4.50
Animal Science	160	10.00
Architecture	65	4.06
Biological Sciences	54	3.37
Business & Commerce	32	2.00
Communications Subjects	64	4.00
Education	45	2.81
Physical Education*	180	10.00
Engineering	160	10.00
Engineering General	32	2.00
Fine and Applied Arts	65	4.06
Forestry	65	4.06
Geography	68	4.25
Home Economics	100	6.25
Library Science	48	3.00
Military Science	32	2.00
Physical Science	62	3.85
Psychology	50	3.13
Social Sciences	37	2.31

*Space for room type 520 and 525. It assumes an average of 30 hours a week use, with an average of 60 per cent station use when utilized.

TEACHING FACULTY OFFICES AND RELATED SPACE

Included are offices for resident teaching faculty, academic deans, instructional department or division heads, secretarial and clerical personnel of instructional departments, and related office service space such as reception rooms, conference rooms, file rooms, etc.

168 Assignable Square Feet Per FTE Instructional Faculty and Academic Administrative Staff Members.

The standard includes a factor of 120 ASF per FTE instructional faculty and academic administrative staff member plus 48 ASF (40 per cent of office space) for related secretarial, clerical, and office service space. Instructional faculty will be projected on the basis of a student-faculty ratio.

LIBRARY SPACE NEEDS

The standards for library space needs provide an average of 25 square feet per reading room student station, and call for enough seating space so that one-fourth of the students can be seated at any one time. The standard also calls for 0.1 square feet of stack space per volume, and 25 per cent as much work area (service area) for cataloging, repairing, and receiving books as there is reading room space.

ADMINISTRATIVE AND GENERAL OFFICE SPACE

This category includes space for general executive and administrative offices, general administrative secretarial and clerical personnel, student services, admissions and registration, placement, public relations, institutional publications, business offices, etc.

ASSIGNABLE SQUARE FEET PER FTE STUDENT

First 2,000 students	7.0
Next 3,000	5.0
Next 10,000	4.0
All over 15,000 students	3.0

PHYSICAL PLANT SERVICE SPACE

This category includes maintenance shops, machine shops, motor pools, garages, heating plants, boiler rooms, police and fire protection facilities, and the like

7.5 per cent of all instructional, organized activity, research, public service, library and general administration and institutional service space.

In addition to the space standards, the following priorities were observed:

PRIORITY I

To eliminate existing deficiencies in academic space. Academic refers to that space which serves the instructional program directly or indirectly. Existing deficiencies would include over-crowded space and space needing major renovation. The first priority would also include purchase of land required for buildings justified in either this or the second priority.

PRIORITY II

This includes elimination of deficiencies in academic space based on future (1975-1980) enrollment projections. Also included in the second priority category is the replacement of temporary space with permanent facilities. Where special purpose facilities, such as libraries, etc., are being planned, the institution should build for a long-range enrollment goal, such as 1980, to avoid the necessity of costly additions every few years. Land purchases needed to complete the campus master plan area, and not in the first priority category, will also be considered in Priority II.

Housing and student services buildings will not be a part of the academic building priority system, but will be considered separately. Such projects will be examined against the criteria of the institution's ability to produce the required revenue with projected enrollment of students who can be expected to use the buildings. Care will be taken to examine changing patterns of student preference for housing, and alternatives in the private housing market that may be more attractive to students. Before additional construction of any housing facilities is authorized, institutions must indicate what steps are being taken to insure that present housing will be used to capacity.

APPENDIX TABLE 1

FUTURE NET ASSIGNABLE SQUARE FEET PROJECTIONS BY ROOM TYPE[1]

Regents' Institutions	*Classrooms*			*Class Laboratories*			*Individual Study Laboratories*		
	Available	*1975 Need*	*1980 Need*	*Available*	*1975 Need*	*1980 Need*	*Available*	*1975 Need*	*1980 Need*
Austin Peay	43,000	42,500	50,000	100,000	51,000	60,000	4,000	5,000	6,000
East Tennessee	197,000	106,000	125,000	142,000	64,000	75,000	4,000	13,000	15,000
Memphis State	240,000	199,000	231,000	342,500	194,000	225,500	8,000	24,000	28,000
Middle Tennessee	142,500	117,500	137,500	125,500	106,000	124,000	2,500	14,000	16,000
Tennessee State	77,500	59,000	69,000	79,000	53,000	62,000	4,000	7,000	8,500
Tennessee Tech.	147,000	81,000	86,000	184,500	73,000	77,500	3,000	10,000	10,500
Sub-Total	847,000	605,000	698,500	973,500	541,000	624,000	25,500	73,000	84,000
Chattanooga	—	19,000	28,000	—	22,500	34,000	—	2,500	3,500
Cleveland State	24,500	20,000	21,500	31,500	24,000	26,000	1,000	2,500	2,500
Columbia State	19,000	14,500	16,000	24,000	17,000	19,500	—	2,000	2,000
Dyersburg State	14,500	9,000	10,500	14,000	10,500	12,500	—	1,000	1,500
Jackson State	29,000	14,000	17,000	15,500	16,500	20,500	1,000	1,500	2,000
Knoxville	—	9,000	28,000	—	10,500	34,000	—	1,000	3,500
Motlow State	9,000	10,000	12,500	23,000	12,000	15,000	500	1,000	1,500
Nashville	—	10,000	40,500	—	12,000	49,000	—	1,000	5,000
Roane State	13,500	11,000	14,000	17,000	13,500	16,500	—	1,500	1,500
Shelby State	35,000	56,000	75,000	39,000	67,500	90,000	—	7,000	9,000
Volunteer State	23,000	20,000	23,000	18,000	24,000	28,000	—	2,500	3,000
Walters State	15,500	15,000	17,000	30,000	18,000	20,500	—	2,000	2,000
Sub-Total	183,000	207,500	303,000	212,000	248,000	365,500	2,500	25,500	37,000
Total Regents' Institutions	1,030,000	812,500	1,001,500	1,185,500	789,000	989,500	28,000	98,500	121,000
UT System									
UT Chattanooga	72,000	60,000	78,000	51,500	54,000	70,500	9,500	7,000	9,500
UT Knoxville	285,000	312,500	334,000	215,500	281,500	301,000	53,000	37,500	40,000
UT Martin	79,000	62,500	69,000	86,500	56,500	62,000	3,000	7,500	8,500
UT Nashville	24,500	34,000	47,000	16,500	30,500	42,000	500	4,000	5,500
Total UT System	460,500	469,000	528,000	370,000	422,500	475,500	66,000	56,000	63,500
Total All Institutions	1,490,500	1,281,500	1,529,500	1,555,500	1,211,500	1,465,000	94,000	154,500	184,500

[1] Table includes net assignable square feet completed, funded or under contract.

APPENDIX TABLE 2

FUTURE NET ASSIGNABLE SQUARE FEET PROJECTIONS BY ROOM TYPE[1]

Regents' Institutions	*Instructional Office Space*			*Administrative Office Space*			*Library Space*		
	Available	*1975 Need*	*1980 Need*	*Available*	*1975 Need*	*1980 Need*	*Available*	*1975 Need*	*1980 Need*
Austin Peay	33,500	32,000	37,500	10,000	21,000	24,000	30,500	32,500	37,500
East Tennessee	100,500	79,500	93,500	69,500	43,000	49,000	99,000	78,000	91,000
Memphis State	211,000	148,500	172,500	71,000	71,500	79,500	118,500	143,500	167,000
Middle Tennessee	80,000	88,000	102,500	54,500	46,500	53,000	121,000	85,500	100,000
Tennessee State	52,500	44,000	51,500	22,000	27,500	31,000	74,500	45,000	51,000
Tennessee Tech.	98,000	60,500	64,500	46,000	35,000	36,500	68,000	60,000	63,500
Sub-Total	575,500	452,500	522,000	273,000	244,500	273,000	511,500	444,500	510,000
Chattanooga	—	14,000	21,000	—	10,500	14,500	—	14,000	21,000
Cleveland State	11,500	15,000	16,000	9,000	11,000	12,000	25,000	15,000	16,000
Columbia State	11,000	11,000	12,000	8,000	8,000	9,000	27,000	11,000	12,500
Dyersburg State	9,000	6,500	7,500	7,500	5,000	6,000	7,500	7,500	8,500
Jackson State	8,500	10,500	12,500	7,500	7,500	9,500	7,000	10,500	13,000
Knoxville	—	6,500	21,000	—	5,000	14,500	—	7,500	21,000
Motlow State	7,000	7,500	9,500	8,000	5,500	7,000	20,500	8,500	10,000
Nashville	—	7,500	30,500	—	5,500	20,500	—	8,500	29,500
Roane State	8,500	8,500	10,500	8,500	6,500	7,500	7,500	9,000	10,500
Shelby State	20,000	42,000	56,000	20,000	26,500	33,000	20,000	40,500	54,000
Volunteer State	12,000	15,000	17,500	9,500	11,000	13,000	8,000	15,000	17,500
Walters State	10,500	11,000	12,500	8,500	8,500	9,500	8,000	11,500	13,000
Sub-Total	98,000	155,000	226,500	86,500	110,500	156,000	130,500	158,500	226,500
Total Regents' Institutions	673,500	607,500	748,500	359,500	355,000	429,000	642,000	603,000	736,500
UT System									
UT Chattanooga	42,000	45,000	58,500	22,500	28,000	33,000	117,000	45,000	47,500
UT Knoxville	353,000	233,500	249,500	97,500	99,000	104,500	188,000	224,500	240,000
UT Martin	63,500	46,500	51,500	14,000	29 000	30,500	50,000	46,500	51,000
UT Nashville	20,500	25,000	35,000	10,000	17,500	23,000	16,000	27,000	35,500
Total UT System	479,000	350,000	394,500	144,000	173,500	191,000	371,000	343,000	374,000
Total All Institutions	1,152,500	957,500	1,143,000	503,500	528,500	620,000	1,013,000	946,000	1,110,500

[1] Table includes net assignable square feet completed, funded or under contract.

APPENDIX TABLE 3

FUTURE NET ASSIGNABLE SQUARE FEET PROJECTIONS BY ROOM TYPE[1]

Regents' Institutions	*Physical Education*			*Physical Plant Space*			*Totals*		
	Available	*1975 Need*	*1980 Need*	*Available*	*1975 Need*	*1980 Need*	*Available*	*1975 Need*	*1980 Need*
Austin Peay	120,000	34,000	40,000	15,000	22,500	27,500	356,000	240,500	282,500
East Tennessee	120,000	85,000	100,000	33,500	30,000	33,500	765,500	498,500	582,000
Memphis State	153,500	159,000	185,000	59,000	66,500	76,000	1,203,500	1,006,000	1,164,500
Middle Tennessee	175,000	94,000	110,000	43,000	42,000	48,500	744,000	593,500	691,500
Tennessee State	37,000	47,000	55,000	28,000	27,000	31,500	374,500	309,500	359,500
Tennessee Tech.	158,500	65,000	69,000	35,000	30,500	34,500	740,000	415,000	442,000
Sub-Total	764,000	484,000	559,000	213,500	218,500	251,500	4,183,500	3,063,000	3,522,000
Chattanooga	—	15,000	22,500	—	6,300	8,200	—	103,800	152,700
Cleveland State	19,000	16,000	17,500	11,000	10,000	10,000	132,500	113,500	121,500
Columbia State	23,000	11,500	13,000	5,500	7,700	7,700	117,500	82,700	91,700
Dyersburg State	19,000	7,000	8,500	9,000	5,500	5,500	80,500	52,000	60,500
Jackson State	17,000	11,000	13,500	6,000	7,500	7,500	91,500	79,000	95,500
Knoxville	—	7,000	22,500	—	5,500	8,200	—	52,000	152,700
Motlow State	15,500	8,000	10,000	1,500	5,400	5,400	85,000	57,900	70,900
Nashville	—	8,000	32,500	—	5,400	9,000	—	57,900	216,500
Roane State	19,500	9,000	11,000	4,000	5,800	5,800	78,500	64,800	77,300
Shelby State	23,000	45,000	60,000	5,000	6,700	13,500	162,000	291,200	390,500
Volunteer State	20,500	16,000	18,500	4,500	6,500	8,000	95,500	110,000	128,500
Walters	20,000	12,000	13,500	4,000	6,200	7,500	96,500	84,200	95,500
Sub-Total	176,500	165,500	243,000	50,500	78,500	96,300	939,500	1,149,000	1,653,800
Total Regents' Institutions	940,500	649,500	802,000	264,000	297,000	347,800	5,123,000	4,212,000	5,175,800
UT System									
UT Chattanooga	41,000	48,000	62,500	15,000	27,700	30,500	370,500	314,700	390,000
UT Knoxville	142,000	250,000	267,500	83,000	172,000	177,000	1,417,000	1,610,500	1,713,500
UT Martin	108,000	50,000	55,000	18,000	25,000	28,000	422,000	323,500	355,500
UT Nashville	—	27,000	37,500	10,000	7,300	11,700	98,000	172,300	237,200
Total UT System	291,000	375,000	422,500	126,000	232,000	247,200	2,307,500	2,421,000	2,696,200
Total All Institutions	1,231,500	1,024,500	1,224,500	390,000	529,000	595,000	7,430,500	6,633,000	7,872,000

[1] Table includes net assignable square feet completed, funded or under contract.